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10 **BEFORE THE ARIZONA CORPORATION COMMISSION**

11 **COMMISSIONERS**

12 LEA MÁRQUEZ PETERSON - Chairwoman
13 SANDRA D. KENNEDY
14 JUSTIN OLSON
15 ANNA TOVAR
16 JIM O'CONNOR

17 IN THE MATTER OF THE APPLICATION
18 OF SOUTHWEST GAS CORPORATION
19 FOR THE ESTABLISHMENT OF JUST
20 AND REASONABLE RATES AND
21 CHARGES DESIGNED TO REALIZE A
22 REASONABLE RATE OF RETURN ON
23 THE FAIR VALUE OF THE PROPERTIES
24 OF SOUTHWEST GAS CORPORATION
25 DEVOTED TO ITS ARIZONA
26 OPERATIONS.

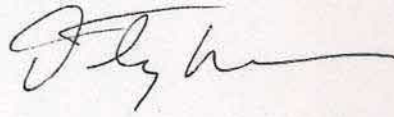
Docket No. G-01551A-21-0368

**NOTICE OF FILING DIRECT
TESTIMONY OF JUSTIN BRANT ON
BEHALF OF SOUTHWEST ENERGY
EFFICIENCY PROJECT**

27 Southwest Energy Efficiency Project, through their undersigned counsel, hereby
28 provides notice they have this day filed the attached direct testimony of
29 Justin Brant.

1 DATED this 12th day of August, 2022.

2 ARIZONA CENTER FOR LAW IN THE
3 PUBLIC INTEREST

4 

5 By
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11 ORIGINAL of the foregoing E-Filed
12 this 12th day of August, 2022, with:

13 Docket Control
14 ACC Portal for eFiling

15 COPIES (8) hand-delivered this 12th day of
16 August, 2022 to:

17 Docket Control
18 Arizona Corporation Commission
19 1200 W. Washington, Street
Phoenix, AZ 85007

20 COPIES of the foregoing mailed or emailed this
21 12th day of August, 2022 to the persons identified
22 on the attached service list, consisting of one
page.

23 
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Docket No. G-01551A-21-0368

Direct Testimony of

Justin Brant

Southwest Energy Efficiency Project (SWEEP)

August 12, 2022

**Direct Testimony of Justin Brant, SWEEP
Docket No. G-01551A-21-0368**

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List of Exhibits

JB-1	Justin Brant Qualifications
JB-2	Response to Data Request AZ Grain 02-03, Att. 1
JB-3	Response to Data Request SWEEP 02-08, Att. 1
JB-4	Response to Data Request SWEEP 02-09
JB-5	Response to Data Request SWEEP 04-01, Att. 2
JB-6	Response to Data Request SWEEP 03-04
JB-7	Response to Data Request SWEEP 03-08
JB-8	Response to Data Request Staff 03-08, Att. 1
JB-9	Response to Data Request SWEEP 02-06
JB-10	Response to Data Request SWEEP 02-01

1 **I. Introduction and Summary**

2 **Q. Please state your name and business address.**

3 A. My name is Justin Brant. My business address is 2334 Broadway, Suite A, Boulder, CO
4 80304.

5 **Q. By whom are you employed and in what position?**

6 A. I am employed by the Southwest Energy Efficiency Project (“SWEEP”) as Utility
7 Program Director.

8 **Q. On whose behalf are you testifying in this proceeding?**

9 A. I am testifying on behalf of SWEEP.

10 **Q. Please describe SWEEP.**

11 A. SWEEP is a public interest organization dedicated to advancing energy efficiency as a
12 means to promote customer benefits, economic prosperity, and environmental protection
13 in the six states of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming.
14 SWEEP works on state legislation; analysis of energy efficiency opportunities and
15 potential; expansion of state and utility energy efficiency programs and the design of
16 these programs; building energy codes and appliance standards; building and
17 transportation electrification; and voluntary partnerships with the private sector to
18 advance energy efficiency. SWEEP collaborates with utilities, state agencies,
19 environmental groups, universities, and energy specialists in the region.

20 **Q. Please give a brief description of your professional experience and education.**

21 A. I have thirteen years of experience working on energy and climate change policy, as well
22 as utility rate design, natural gas decarbonization, energy efficiency program design,

1 evaluation, and advocacy. From March 2018 until August 2020, I was a Senior Associate
2 in the Utility Program at SWEEP. I was promoted to my current position in August 2020.
3 Prior to working at SWEEP, I was a consultant at the Cadmus Group and served as
4 Assistant Director of the Electric Power Division at the Massachusetts Department of
5 Public Utilities (“DPU”). At the DPU, I led development of state policies related to
6 energy efficiency and renewable energy and provided oversight of the state’s nation-
7 leading energy efficiency programs. My qualifications are included as Exhibit JB-1.

8 **Q. Have you previously testified before this Commission?**

9 A. No, I have not. However, I have testified in front of the Public Utility Commissions in
10 Colorado and New Mexico on issues relating to demand-side management, utility rates
11 and rate design, utility system planning, and other issues. In addition, SWEEP has a long
12 history of participation in a range of ACC dockets.

13 **Q. Please summarize your Direct Testimony.**

14 A. In my Direct Testimony I respond to the testimony of Southwest Gas (“SWG” or
15 “Company”) witnesses and make recommendations to the Arizona Corporation
16 Commission (“ACC” or “Commission”). First, I provide a brief overview of the
17 transition taking place in the gas industry and the risk it poses to customers. Then, I
18 review key metrics related to the SWG distribution system and benchmark the
19 Company’s system against peer utilities. I then recommend that the ACC require SWG to
20 file Infrastructure Investment Plans to provide transparency into its system investments to
21 minimize the risk of stranded assets during the gas transition. Finally, I make
22 recommendations to the ACC regarding gas line extension policy, Customer-Owned
23 Yard Lines (“COYLs”), the Move2Zero program, and the Low-Income Ratepayer
24 Assistance program.

1 **Q. Please state your recommendation in this case.**

2 A. In my testimony I make the following recommendations to the ACC in the following
3 areas:

- 4 1. Based on my analysis of the condition of SWG's Arizona system it is generally in
5 satisfactory condition and contains minimal leak-prone materials. Therefore,
6 SWG's system does not require extensive or accelerated repair or replacement
7 beyond typical maintenance.
- 8 2. Adopt a reporting process for SWG known as the Gas Infrastructure and
9 Investment Plan to provide transparency into SWG's planning process and help
10 navigate the gas transition.
- 11 3. End line extension allowances for new residential and non-residential customers,
12 and instead require all new customers to pay the full cost of connecting to the gas
13 system.
- 14 4. End the Customer-Owned Yard Line Program for all customers with the
15 exception of those on a low-income rate plan.
- 16 5. Reject the proposal to adopt the Move2Zero carbon offset program.
- 17 6. Approve the modifications to the LIRA Program proposed by SWG.

18 **II. Gas Industry Overview**

19 **Q. How would you characterize the current state of the gas utility industry?**

20 A. The gas industry is in a time of transition. Because of increases in energy efficiency and
21 improvements in the economics for technologies that run on electricity, we can no longer
22 assume that gas usage will continue to precipitously increase in order to support an ever-

1 expanding rate base. The 2022 Annual Energy Outlook forecasts that gas usage in the
2 Mountain Region (which includes Arizona) will only grow by 0.5%/year for the
3 residential sector and 0.3%/year for the commercial sector between now and 2050.¹
4 When combined with the significant expected population growth in the region, this
5 means that natural gas usage per customer will likely see significant declines. At the
6 same time, increased gas commodity costs are straining customers and reliability
7 concerns are impacting the whole western United States. Finally, concerns about
8 greenhouse gas (“GHG”) emissions and the health impacts of gas usage are further
9 driving changes in the industry.

10 **Q. How are improving economics for electrification changing the gas industry?**

11 A. There have been significant improvements in electric technologies such as heat pumps,
12 heat pump water heaters, and induction cooktops that allow these options to meet
13 customers’ needs at lower costs than gas alternatives. For example, a recent study by
14 SWEEP found that customers in Phoenix and Tucson can significantly lower their total
15 energy bills by heating their homes with a heat pump when compared with a gas furnace
16 in both existing homes and new residential construction.² As shown in Table JB-1 this
17 translates into a lower lifecycle cost when a customer installs a heat pump to meet their
18 heating needs instead of a gas furnace, even when accounting for the increased cost of
19 installing a heat pump. As customers realize the available economic savings from heating

¹ EIA, “AEO 2022 Reference Case, Table 2. Energy Consumption by Sector and Source, Mountain Region,” available at <https://www.eia.gov/outlooks/aeo/data/browser/#/?id=2-AEO2022®ion=1-8&cases=ref2022&start=2020&end=2050&f=A&linechart=~~~~~ref2022-d011222a.6-2-AEO2022.1-8~ref2022-d011222a.20-2-AEO2022.1-8&map=ref2022-d011222a.4-2-AEO2022.1-8&ctype=linechart&chartindexed=0&sourcekey=0>

² Kolwey and Petroy, “Benefits of Heat Pumps in the Southwest” at 18, available at <https://swenergy.org/pubs/southwest-heat-pump-study-2022>

and cooling with heat pumps in Arizona, they will make the economical choice to switch to heat pumps, which can also provide efficient cooling.

SWEEP's study found the same results for heat pump water heaters in Arizona, where the total lifecycle costs of switching to a heat pump water heater from gas-fired equivalent is lower over the life of the equipment.

Table JB-1. Lifecycle costs for heat pumps vs. gas furnaces in warmer cities in the Southwest

City and Scenario	Gas Furnace	Heat Pump	Difference in Installed Cost for Heat Pump System vs. Gas Furnace	Total Incremental Life-Cycle Costs for Heat Pump (\$)	Total NPV of GHG Emission Benefits (\$) (using social cost of carbon and methane)
	NPV of Heating Costs (\$)	NPV of Heating Costs (\$)			
New Home					
Phoenix, AZ	\$3,221	\$1,914	\$1,000	(\$306)	\$635
Tucson, AZ	\$4,883	\$3,022	\$1,000	(\$861)	\$931
Las Vegas, NV	\$3,694	\$2,441	\$1,000	(\$252)	\$1,163
Las Cruces, NM	\$4,591	\$4,026	\$1,000	\$435	\$1,536
Retrofit of Existing Home					
Phoenix, AZ	\$3,726	\$2,256	\$1,000	(\$469)	\$726
Tucson, AZ	\$5,502	\$3,448	\$1,000	(\$1,055)	\$1,041
Las Vegas, NV	\$4,239	\$2,823	\$1,000	(\$416)	\$1,329
Las Cruces, NM	\$5,154	\$4,626	\$1,000	\$472	\$1,699

Q. What do you expect the impact of the economics of electrification will be?

A. Given that customers can save money by moving to electric end-uses in Arizona, I would expect customers to make the rational economic decision to move away from gas for heating and hot water. As customers reduce their gas usage through electrification, there will be upward pressure on gas rates as existing fixed costs will be spread among lower sales. At the same time there will be downward pressure on electric rates as electricity

usage increases from the electrification of end uses that currently are powered by gas.

This will only improve the economics of electrification, causing additional customers to exit the system. As customers reduce usage through electrification and potentially leave the gas system, there is a significant risk that investments made today and in the coming years will become stranded assets.

Q. Are there environmental benefits from the improvements in energy efficiency and building electrification?

A. There are significant environmental benefits that will result from the changes in the gas system that are being driven by economics such as reduced GHG emissions, reduced nitrogen oxides (NO_x) emissions, and local air quality benefits. For example, SWEEP's study on electrification found that switching from a gas furnace to a heat pump for heating in Phoenix and Tucson can reduce GHG emissions by approximately 60% with a heat pump water heater reducing emissions by over 66% compared with a gas-fired alternative. In addition, combustion of natural gas in buildings is also a large source of NO_x emissions, which is a precursor for ozone pollution. In 2022, the American Lung Association ranked Maricopa County as having the 7th worst ozone pollution in the country, with Pinal County ranked 24th worst.³ Thus, reductions of gas usage in buildings can also have significant air quality benefits.

Q. Are there other public health benefits from electrification of gas appliances?

A. There is a lot of recent research on the impacts of gas appliances on indoor air quality. People spend more than 90 percent of their time indoors and the air indoors is often more polluted than outdoor air. For example, gas stoves have been found to release large

³ American Lung Association, "State of the Air Report," 2022. Available at <https://www.lung.org/research/sota/key-findings/most-polluted-places>

1 amounts of methane (CH₄) and NO_x.⁴ Indoor exposure to these pollutants can lead to
2 asthma and other respiratory issues, especially in children.

3 **Q. Would you describe what you mean by “Stranded Assets”?**

4 A. If gas throughput and peak demand declines sufficiently, an asset may no longer be “used
5 and useful” before it is fully depreciated. In this case, there will no longer be an economic
6 or operational justification to keep the asset in rate base, and the asset will be stranded.
7 Even if investments are not fully stranded, however, an asset that is not fully utilized as
8 planned will create a gap between the revenue recovered through rates, and the revenue
9 required to pay it off. If this gap becomes large enough, the utility will need to raise rates
10 for remaining ratepayers or recover the cost of the asset through a different pathway.⁵

11 **Q. Are there equity concerns related to the stranded asset risk?**

12 A. Yes. As gas rates increase and customers choose electric options, those that cannot afford
13 to replace their existing gas-fired equipment with electric alternatives will remain on the
14 gas system and be stuck paying for the remaining gas infrastructure. These customers will
15 likely be predominantly low-income customers and renters.

16 **Q. Are there any quantitative analyses to support your statements regarding risk?**

17 A. Yes. Multiple states have analyzed the potential cost of stranded system assets under a
18 high-electrification scenario. For example, a study in California found that electrification
19 will cause total gas system throughput to decline by about half by 2050. System revenues

⁴ Lebel et. al., “Methane and NO_x Emissions from Natural Gas Stoves, Cooktops, and Ovens in Residential Homes.” Available at <https://pubs.acs.org/doi/10.1021/acs.est.1c04707>

⁵ Environmental Defense Fund, “Managing the Transition—Proactive Solutions for Stranded Gas Asset Risk in California” at 17. Available at https://www.edf.org/sites/default/files/documents/Managing_the_Transition_new.pdf

1 will likewise decline by about 50%. As a result, average gas volumetric rates will climb
2 by about 300% in a scenario without any measure to manages the gas transition.⁶

3 **Q. What can be done to mitigate the stranded asset risk?**

4 A. The best thing that can be done to mitigate the future stranded asset risk is to minimize
5 investments in additional gas assets today. This can be done by scrutinizing new
6 investments to expand or upgrade the gas system to make sure that a utility is fully
7 considering alternatives to capital investments, such as demand-side management, and
8 that safety and reliability investments are totally necessary. Furthermore, new additions
9 can be avoided by ensuring that the utility is not providing incentives for new
10 development or needlessly adding to its rate base through specific programs or oversizing
11 expansion projects to meet future demand that may not materialize.

12 **Q. Do you believe that SWG's rate case shows that the Company is considering the**
13 **stranded asset risk sufficiently in its planning?**

14 A. No, I do not. In just over one and a half years between the Company's last rate case test
15 year and the current test year, SWG added approximately \$710 million in capital
16 investments. By far the largest categories of direct capital additions during this time
17 period was replacement of existing mains and services.⁷ The Company reports that it did
18 not consider any alternatives for any of these main replacement projects, stating only that
19 the replacement was required.⁸ According to the Company's capital spending plans it has
20 no plans to slow down its capital expenditures in the coming years.⁹

⁶ California Energy Commission, "The Challenge of Retail Gas in California's Low-Carbon Future" at 50. Available at <https://www.energy.ca.gov/sites/default/files/2021-06/CEC-500-2019-055-F.pdf>

⁷ Response to Data Request Arizona Grain 02-03, Att. 1, included as Exhibit. JB-2

⁸ Response to Data Request SWEEP 02-008, Att. 1, included as Exhibit JB-3

⁹ See, Southwest Gas Response to SWEEP 02-009, Confidential Att. 1, included as Exhibit JB-4

Q. Do you believe that the Company's significant expenditures related to system replacement and expansion are warranted and properly justified?

A. No, I do not. As will discuss later in my testimony, SWG has an incredibly modern distribution system, and it is performing quite well in terms of the safety and reliability metrics reported to the federal government. It is hard for me to square the composition and performance of SWG's system with the significant Company expenditures to replace existing pipelines and services.

Q. Are you advocating for no new natural gas infrastructure?

A. No. While it is the duty of natural gas system operators to safely maintain their systems and provide reliable service – often through capital spending and upgrades, the potential for stranded assets must also be considered. This is not to say that no further capital expenditures will be necessary to address on-going safety and reliability concerns, but that given the gas transition issues discussed above we must give appropriate scrutiny to gas system investments to minimize the risk of stranded assets moving forward.

III. Analysis of the Condition of Southwest Gas' Distribution Infrastructure

Q. What analysis did you perform on SWG's infrastructure?

A. To gain an understanding of the condition of SWG's distribution infrastructure in both absolute terms and relative to its peers, I analyzed the following metrics:

- Pipe quantities and material composition;
- Pipe age;
- Total leak repair and hazardous leak repair quantities;
- Leaks per mile;

- Leak cause distribution; and
- Lost gas percentages.

Q. Did you perform any peer benchmarking during this analysis?

A. Yes. In order to better understand the Company's performance, I prepared a Peer Group for benchmarking purposes. I used the annual gas distribution summary reports provided by the federal Pipeline and Hazardous Materials Safety Administration ("PHMSA")¹⁰ to generate a Peer Group for a comparative analysis across a number of infrastructure metrics. These reports are publicly available directly from PHMSA and contain a summary of all the information provided in all United States natural gas operators' submissions of form PHMSA F 7100.1-1.

Q. How did you select this Peer Group?

A. In order to provide a meaningful benchmark to which SWG's infrastructure, leak metrics, and other infrastructure metrics can be compared, a Peer Group was developed using a methodology that is independent of leak data and provides the most comparable group of utilities. To reduce the approximately 1,470 United States gas system operators into a meaningful Peer Group for comparison with SWG, all operators in the PHMSA Annual Gas Distribution Summary were filtered three times:

- *The first filter was by system size – all operators with approximately more than double or less than half the total miles of main as SWG were excluded. This removes disparately sized utilities.*

¹⁰ Gas Distribution, Gas Gathering, Gas Transmission, Hazardous Liquids, Liquefied Natural Gas (LNG), and Underground Natural Gas Storage (UNGSA) Annual Report Data, Available at <https://www.phmsa.dot.gov/data-and-statistics/pipeline/gas-distribution-gas-gathering-gas-transmission-hazardous-liquids>

- 1 • *The second filter was by customer count – all operators with approximately*
2 *more than double or less than half the total number of services as SWG were*
3 *excluded. This further removes disparately sized utilities with an alternate system*
4 *layout.*
- 5 • *The third filter was by system composition – The remaining utilities were sorted*
6 *by miles of leak-prone pipe such as cast iron main, and miles of uncoated steel*
7 *main were selected and the most similar utilities were selected. This removes most*
8 *utilities with less modern systems that have exceptionally large amounts of cast*
9 *iron or bare steel.*

10
11 The total number of peers in the Peer Group is a function of the availability of
12 similarly-sized utilities with comparable material composition, balanced with the need for
13 a meaningful sample size. Data used for the purposes of this testimony came from the
14 reporting year 2021, which is the most recent report available at the time of this writing.
15 The final Peer Group was comprised of 21 utilities across the country.

16 **Q. What were the results of your analysis regarding the composition of SWG's pipe**
17 **materials?**

18 **A.** The vast majority (98%) of main installed on the SWG system is made of cathodically
19 protected and coated steel or plastic with a minimal amount of uncoated steel as Figure
20 JB-1 below illustrates¹¹:

¹¹ As of 12/31/2021 per the Company's 2021 PHMSA filing

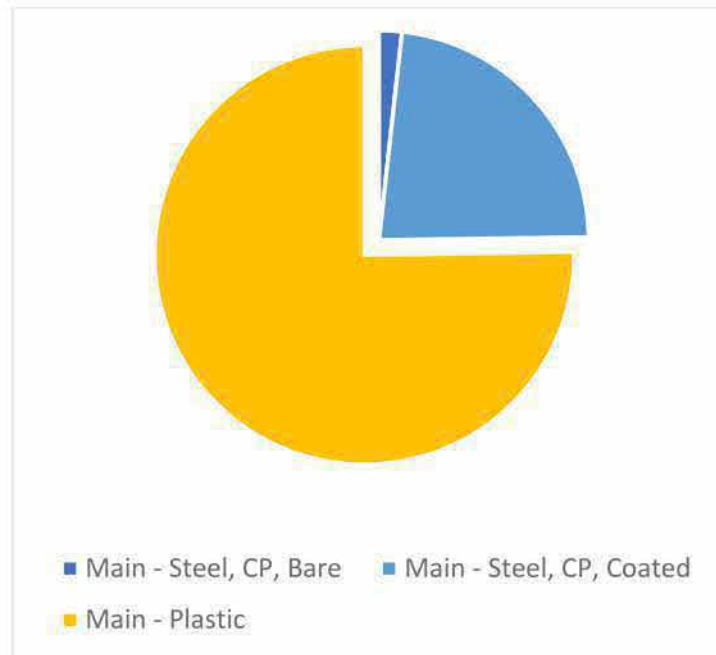


Figure JB-1. Distribution main material composition

Most notably, there is no leak-prone pipe (“LPP”) such as cast iron, ductile iron, copper, or bare unprotected steel main on SWG’s Arizona distribution system and only negligible (~1%) amounts of uncoated (but protected) pipe. Pipes comprised of materials such as these, have a higher statistical chance of leaking due to their susceptibility to corrosion or breaking than the materials that make up SWG’s system. Additionally, there is no main in the system whose material composition is unknown to SWG, and which may represent an unknown risk.

The services on the SWG system are similar in material composition profile, but with even less uncoated and protected steel (0.3%).

Q. What conclusions do you draw from your analysis of pipeline composition?

A. This system composition is quite modern with the vast majority of pipeline made of plastic. This type of system of composition is at relatively low risk. The low risk of the system is especially noticeable when compared with the system composition of other utilities which contain larger amounts LPP (discussed below).

1 **Q. What were the results of your analysis of SWG's pipe age?**

2 A. Regarding the age of the SWG distribution system, the age of a particular piece of pipe is
3 typically a factor in determining its relative risk of leaking. Pipe manufacturing processes
4 such as metallurgy and seam welding, pipeline construction practices such as pipe
5 coating and hydrostatic pressure testing, and O&M practices such as in-line inspections
6 and cathodic protection have all improved over time – giving longer life to newer pieces
7 of pipe.

8 Identifying a specific life expectancy for a given piece of pipe is difficult given
9 the vast number of variables that affect the expected life span of a given piece of pipe.
10 Generally speaking, as pipe made of leak-prone materials approaches roughly 50 years of
11 age (pre-1970 pipe), there can be an increase in the incidence of internal corrosion,
12 external corrosion, stress cracking, and other material failure leaks. This is partly due to
13 the implementation of federal regulations on pipeline operators that were put in place in
14 1971, coupled with improvements in construction practices, metallurgical practices, and
15 more. On the other hand, an estimated life expectancy for modern steel pipes is generally
16 70-80 years old, and for modern PE plastic pipes, it can be 80+ years. This generalization
17 is not absolute and there are exceptions to the rule, but it makes for a baseline from which
18 to compare the age of a utility's system.

19 As shown in Figure JB-2 the majority of distribution mains on the SWG system
20 were installed since 1990, with 45% of the mains installed since 2000. Assuming the 70-
21 80 year useful life discussed above, only 3% of main installed in the SWG Arizona
22 system are approaching a typical end of useful life (pre-1950's). The services installed in
23 the SWG Arizona territory are comparable to the mains, but somewhat newer with only
24 1% or less installed prior to the 1950s and 92% installed after 1970.

When compared to its peers, it becomes clear that SWG's distribution main and services are overall newer than that of its peers as discussed in more detail below.

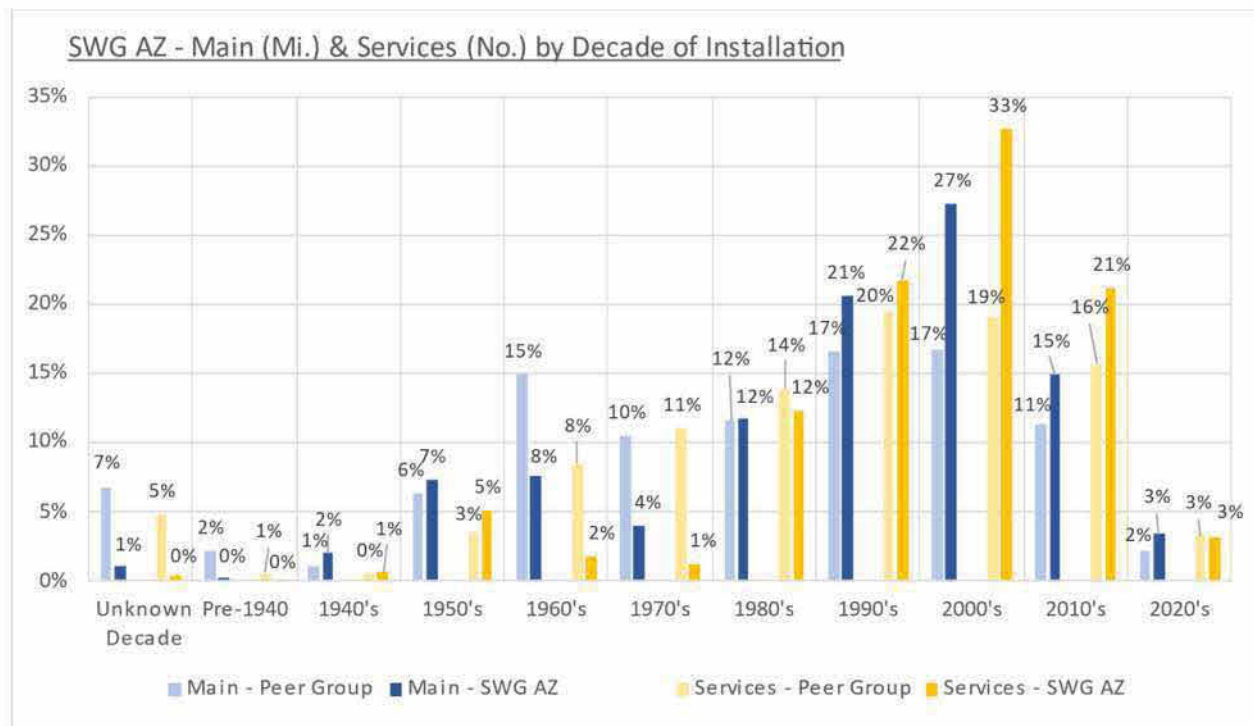


Figure JB-2. SWG system age peer comparison

Q. What is your preliminary conclusion regarding the relative safety of the system given the material composition and age of the SWG system?

A. Looking at the above infrastructure metrics only, it appears that SWG's system is in relatively good condition and represents a lower-than-average risk of failures. The system does not include large amounts of LPP, and the majority of the pipeline was installed in the last 30 years. However, in order to confirm the system's performance, I performed an analysis of SWG's leak rates to determine the frequency, severity, and causes of leaks on the system.

Q. Describe your methodology for analyzing leaks on the SWG system.

A. Leaks occur on all gas systems regardless of age and material composition. Leaks can be caused by natural forces like earthquakes, excavation damage, corrosion, and many other

1 factors. Generally, gas distribution systems can be evaluated for condition by analyzing
2 the number of leaks, the cause of the leaks, and the severity of the leaks.

3 In the natural gas industry, leaks are generally graded using an industry standard
4 system which identifies the severity of the leak (1, 2, or 3) and the actions required to
5 mitigate, make safe, and/or monitor. These leak grade definitions are generally defined as
6 follows:

- 7 1. **Grade 1 leaks** – are leaks that represent an existing or probable hazard to
8 persons or property and require immediate repair or continuous action
9 until the conditions are no longer hazardous, i.e., a leak that can be seen,
10 heard, or felt, and which is in a location that may endanger the general
11 public or property.
- 12 2. **Grade 2 leaks** – are leaks that are recognized as being non-hazardous at
13 the time of detection, but justify scheduled repair based on probable future
14 hazard, i.e., a leak requiring action within six months and repair within
15 fifteen months.
- 16 3. **Grade 3 leaks** – are leaks that are non-hazardous at the time of detection
17 and can be reasonably expected to remain non-hazardous.

18 Both Grade 1 leaks (also termed hazardous leaks) and known leaks are identified
19 separately from the total leak count during analysis and used as an additional indicator of
20 a utility's management of its infrastructure and the condition of that infrastructure

21 Because systems vary wildly in size, the leaks on a system are analyzed in various
22 ways, and sometimes adjusted for utility size by using a leak per mile metric. The leak
23 metrics that I used in this analysis are as follows:

1. **Total Leaks:** This metric includes all leaks that the system experienced in the calendar year and that the utility repaired. Most often Total Leaks are used to derive the Leaks per Mile metric.
2. **Leaks per Mile:** This metric is equal to the Total Leaks metric divided by the miles of main in the system. Expressed as a ratio (i.e., 0.2 leaks per 1 mile).
3. **Hazardous Leaks:** This metric includes all Grade 1 leaks that the system experienced in the calendar year and that the utility repaired.
4. **Known Leaks:** This metric includes all leaks that the system operator is aware of but has not repaired at the end of the calendar year. Typically, this is mostly small, grade 3 leaks or leaks that occurred on the last day or two of the year.

Q. Describe the results of your analysis of SWG's leaks per mile trend.

A. On a per-mile basis, the SWG system experienced a significantly lower leak per mile rate than the Peer Group average. This positive metric is further supported by a 5-year trend analysis in which the SWG system leaks have been steadily declining to a rate lower than that of their peers, as can be seen in the figure below.



Figure JB-3. SWG leaks per mile analysis

Q. Describe the results of your analysis of SWG's hazardous leak trend.

A. Like total leaks, hazardous leaks on the SWG systems have been trending downwards over the past 5 years. The figure below summarizes this trend well.

Additionally, hazardous leaks as a percentage of total leaks and hazardous leaks per mile are trending downwards – both trends are good indicators that the system is being continually improved with no major maintenance/operation issues.

¹² This figure represents main leaks per mile of main. Comparing total leaks per system mile of main to include miles of services results in a similar trend.

Total Hazardous Leaks - 5-Year Trend					
Year	Total Haz Leaks - Main	Total Haz Leaks - Services	Total Haz Leaks - All Causes	YoY % Change	YoY # Change
2017	264	2,991	3,255	-	-
2018	222	2,394	2,616	-20%	-639
2019	135	1,868	2,003	-23%	-613
2020	144	1,709	1,853	-7%	-150
2021	110	1,317	1,427	-23%	-426

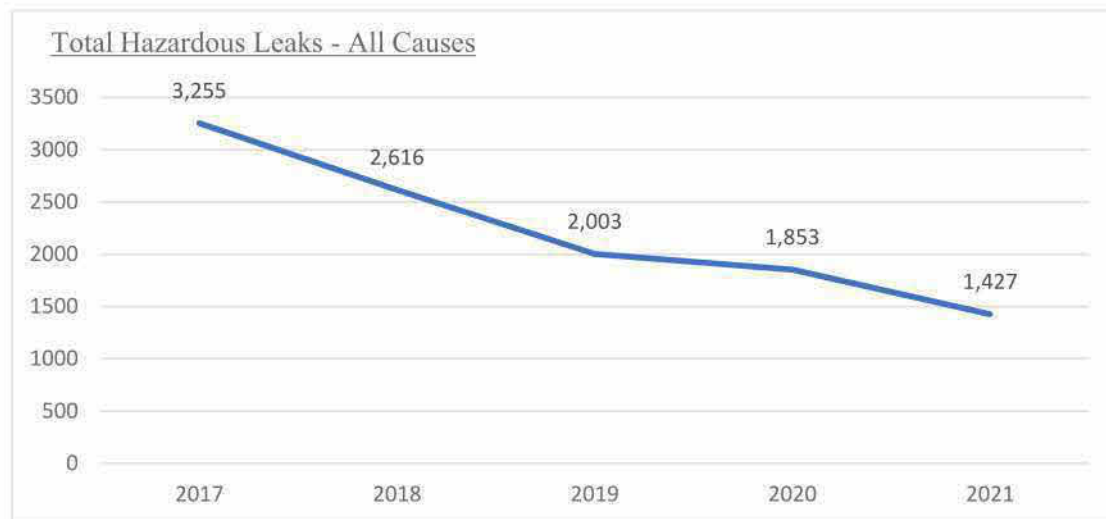


Figure JB-4. SWG hazardous leak trend

Q. Describe the results of your analysis of SWG’s known leaks trend.

A. The year-end open leak inventory, reported as “Known Leaks,” is the total number of leaks that the Company has yet to repair on its system at year end. These leaks are almost always low-risk leaks classed as Grade 3 leaks which are not required to be immediately repaired or are leaks that were discovered immediately before the end of the year and have yet to be repaired.

The SWG system carries over low quantities of leaks from year to year, with the most recent year (2021) resulting in 29 in AZ – far below the average of the Peer Group (2,085).

Q. Please summarize the various leak metrics you reviewed and your conclusions regarding their impact on the analysis.

A. Table JB-2 below compares the SWG leak metrics to those of the industry at large. Peer Group averages are simple mean averages.

Leak Metric	SWG AZ	Peer Group Avg.
Total Leak Repairs	5,818	8,224
Leak Repairs per Mile of Main	0.283	0.440
Total Hazardous Leak Repairs	1,427	3,444
Hazardous Leak Repairs per Mile of Main	.163	0.184
End of Year Leak Inventory	29	2,084
Non-Excavation leak repairs	5,393	6,826
Non-Excavation Haz leaks	1,251	2,112
Non-Ex. Haz leaks Per Mile of Main	0.06	0.11

Table JB-2. 2021 leak metrics summary

Total leak repairs, known leaks at year end, and leaks per mile are lower than the averages of the Peer Group in each metric. This is typical of a large utility with a relatively modern and well-maintained system.

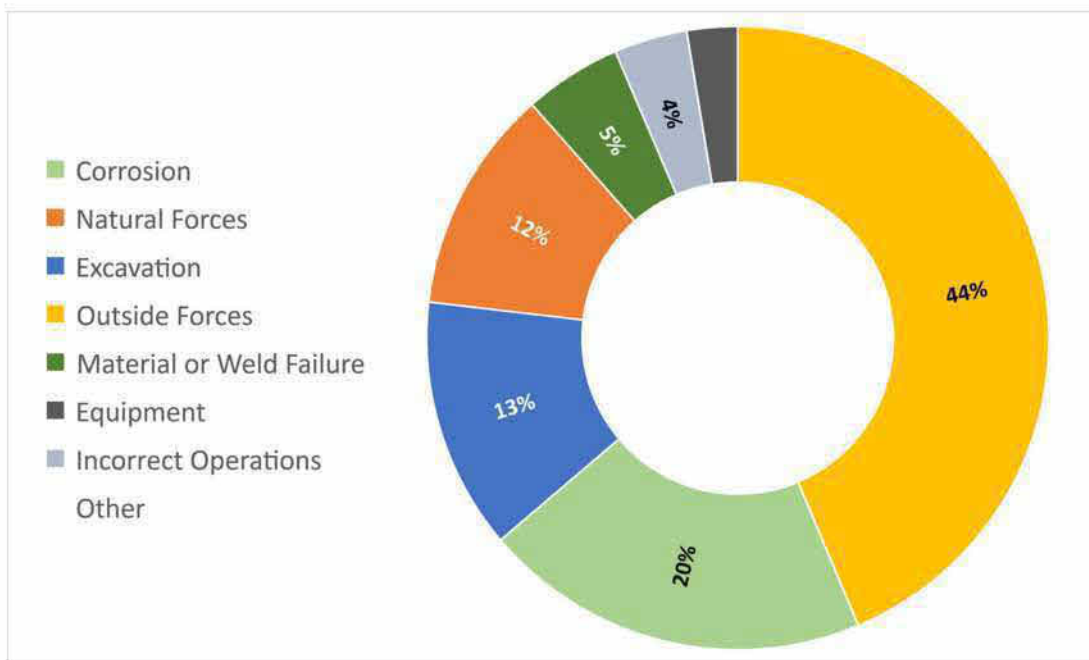
Q. Given that there have been a number of hazardous leaks on the SWG system, did you do any additional analysis on the cause of such hazardous leaks?

A. Yes, I did. Even though, by all metrics I reviewed, there is indication of a downward trend in hazardous leaks, given the quantity of the hazardous leaks on the system, I performed a root cause analysis to determine the primary causes of the hazardous leaks reported in 2021 to gain better insight into the risks to the system.

The largest contributor to hazardous leaks on the SWG AZ system in 2021 by a large margin was “Other Outside Force Damage”. This category of leak cause is a catch all for damage caused by an outside force that was not specifically excavation or natural

1 forces like an earthquake or fire. This category can include things like vehicular damage,
2 vandalism, non-excavation industrial activity, and similar types of damage.

3 Corrosion accounted for approximately 20% of all hazardous leaks between both
4 mains and services, but it is of note that 99% of those corrosion leaks were on services
5 with only 3 total corrosion leaks on main. The remaining causes of hazardous leaks are
6 mostly excavation damage and natural forces.



7
8 **Figure JB-5. 2021 hazardous leak root causes**

9 This analysis leads me to believe that while there continues to be a minor number
10 of corrosion leaks, the issue is almost entirely constrained to services. These four primary
11 root causes are typical of a system without severe infrastructure concerns which further
12 supports my analysis that the system is in relatively good condition and exhibits minimal
13 signs of distressed infrastructure in dire need of large-scale replacement.

14 Finally, I compared SWG's hazardous leaks to those of its Peers. By every metric
15 reviewed, SWG's system performs better. Compared to the Peer Group average, on the
16 SWG system, there are:

- 1 • Fewer total hazardous leaks,
- 2 • Fewer hazardous leaks per mile of main,
- 3 • Fewer non-excavation hazardous leaks both in total, and on a per-mile
- 4 basis, and
- 5 • Fewer corrosion or material failure-related hazardous leaks.

6 By all leak metrics reviewed, SWG's Arizona system has declining leak rates and
7 lower leak rates than the average of the Peer Group. This is consistent with the
8 infrastructure condition reviewed above and is indicative of a system that does not
9 contain a high number of infrastructure condition-related risks.

10 **Q. Did you review any other infrastructure metrics?**

11 A. Yes. I performed an analysis of SWG's Lost and Unaccounted for Gas ("LAUF"), and
12 excavation damage trends.

13 LAUF is one of the metrics that can be used to evaluate the general thoroughness
14 of a utility in managing leaks, recordkeeping, and general management of the system. In
15 other words, the farther from zero (both positive and negative), the less gas the utility was
16 able to account for and the greater the potential for issues such as missing/mismanaged
17 data or leaks.

18 For the SWG Arizona system, the Company has maintained a LAUF very close to
19 zero for the past 5 years, straying no further than 0.6% from zero. Compared to the Peer
20 Group average of 2.12%, this is another indicator of the efficacy of system management
21 and leak management.

22 **Q. What did your analysis of excavation damage trends conclude?**

23 A. Excavation tickets are generated when a contractor, homeowner, or other party wishes to
24 perform underground work. When these tickets are received by the Company, they must

1 respond in a timely manner and locate any underground facilities. The quantity of
2 excavation tickets is reported annually. When something goes wrong and one of those
3 underground facilities is struck by excavation activities, an “excavation damage” is
4 reported.

5 By comparing the ratio of excavation tickets generated to excavation damages
6 experienced, one can calculate a “hit rate” that may be indicative of the efficacy of a
7 utility’s damage prevention program, locating practices, and similar activities. On the
8 SWG – Arizona system, there were very few excavation damages in 2021 – with only
9 460 damages occurring, despite the approximately 749,000 excavation tickets the
10 Company received. That results in an exceptionally low hit rate of 0.0006 damages per
11 ticket, which is less than a quarter of the Peer Group average of 0.0025. This damage rate
12 becomes harder and harder to maintain as a system grows so SWG’s record is particularly
13 good given the size of the system. Regarding the sub-cause of excavation damages, 80%
14 of the 460 excavation damages resulted from insufficient excavation practices or
15 insufficient OneCall practices, 11.5% from poor locating practices, and the remaining 5%
16 being “other”. A Peer Group analysis revealed that the average Peer had 25% of its
17 damages being due to poor locating practices.

18 **Q. Given the numerous infrastructure metrics you reviewed, leak metrics, and the Peer**
19 **Group benchmarking effort you performed, what are your ultimate conclusions**
20 **regarding the condition of the SWG Arizona system?**

21 **A.** Broadly speaking, the SWG distribution system is in good condition in both an absolute
22 and relative sense. A system of this composition and age is enviable by many utilities of
23 SWG’s size. The system contains minimal aging or leak-prone materials and is free from
24 large amounts of high-risk infrastructure that would require aggressive replacement.

1 This good condition is evidenced by the leak metrics I reviewed, which showed
2 not only declining leaks, declining hazardous leaks, and declining leaks per mile, but also
3 better leak metrics than those of its peers overall. Further evidence of the system's
4 condition is found in the low LAUF metric.

5 It is my conclusion that the SWG system condition is that which does not require
6 extensive or accelerated repair or replacement beyond typical maintenance.

7 **IV. Analysis of Southwest Gas' Incident History**

8 **Q. Please describe the nature of your review of SWG's gas incident history and the**
9 **relevance of it.**

10 A. Every year, major natural gas incidents (large leaks or ruptures) that meet one of several
11 criteria are required to be reported to PHMSA. Incidents that must be reported include all
12 natural gas ignitions, explosions, leaks, or ruptures that involve:

- 13 • A death or serious injury,
- 14 • Estimated property damage over \$122,000,
- 15 • Gas loss of three million cubic feet or more,
- 16 • The emergency shutdown of an LNG or a UNGSF facility, or
- 17 • An event that is otherwise significant in the judgment of the operator.¹³

¹³ CFR §191.3

1 These types of incidents are severe, and an ongoing trend of such incidents may
2 be indicative of infrastructure issues, system management issues, and/or other underlying
3 problems.

4 The above aggregated data is made public in raw form, so I used these data to
5 perform an analysis of the SWG system's incident history. The analysis covers the
6 relative quantity of incidents experienced by utilities in the country, and the SWG system
7 in Arizona. The metrics I used to measure the severity of the incidents include gas
8 released, injuries and fatalities, costs, and customers affected per event. Finally, this
9 analysis included a root cause analysis to look for trends in the types of causes that lead
10 to these incidents.

11 **Q. How has SWG's Arizona system compared to the industry regarding major natural**
12 **gas incidents?**

13 A. At a high level, the SWG Arizona system experienced similar peaks and slumps in the
14 levels of incidents over the past decade to the national data. This can be seen in the figure
15 below where, with the exception of 2017, the State of Arizona as a whole and SWG's
16 Arizona system track relatively well with state and national incident levels.¹⁴

17 Please note that the blue line for total industry incidents utilizes the vertical axis
18 on the left side of the figure, while the orange and grey AZ and SWG lines utilize the
19 secondary access on the right side of the figure.

¹⁴ As the largest utility in Arizona, SWG's incidents have a major influence on statewide trends.



Figure JB-65. SWG reportable incident trend comparison

Although the high-level peaks and slumps are comparable, the industry as a whole experienced more incidents when accounting for system size. The industry in total had 0.97 incidents per thousand miles of distribution main per year on average over the past decade. Over the same time period, SWG experienced 0.59 incidents per thousand miles of distribution main per year on average in its Arizona system.¹⁵

After an exhaustive review of all incidents in the last decade, nationwide, Table JB-3 summarizes the relative severity and frequency of incidents in each area.

¹⁵ Calculation utilizes 2010-2020 data and is equal to ((total incidents/total miles of main in 2020)*1000)/10

Severity of Incidents						
Location	Lost Gas Per Incident (Mcf)	Injuries Per Incident	Fatalities Per Incident	Avg. Customers Affected per Incident	Approx. Cost Per Incident	Incidents per 1,000 Miles Per Year
Industry	1603.9	0.44	0.09	141	\$1,973,490	0.97
All Arizona	418	0.45	0.00	335	\$1,077,863	0.77
SWG Arizona	658	0.25	0.00	288	\$1,727,265	0.59

Table JB-3. SWG reportable incident severity summary

As the data shows, SWG compares favorably with the industry averages in terms of severity of the average incident. It appears that, on average, SWG incidents are relatively minor and are resolved quickly. A few items of note from a review of the data:

- SWG has had zero incident fatalities at all in the 2010-2020 timeframe reviewed.
- The average cost per incident includes lost gas, property damage, emergency services, and cost of replacing equipment/infrastructure. SWG's average is skewed drastically by a 2021 incident involving the theft of equipment which led to total costs estimated to exceed \$2,000,000. Without this number, the SWG average cost per incident in Arizona is \$63,638.
- Customers affected per incident are higher than the industry average – due largely to a single outlier incident that required a control valve be closed while a service struck by a third party was repaired which affected a large number of customers.

Lastly, I performed an analysis of the root causes of major incidents on the SWG system in AZ, the state averages, and the same on national averages. The figure below illustrates the **percentages** that each root cause makes up of the total incidents reported:

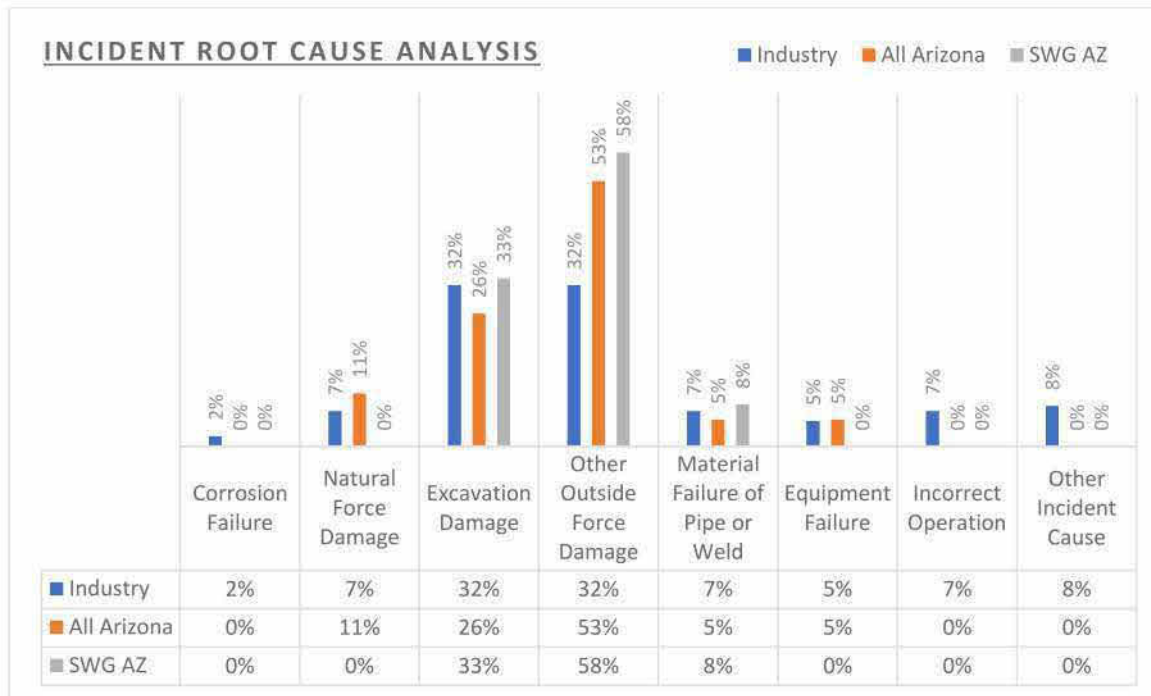


Figure JB-7. 6Major incidents root cause analysis

The SWG system tracks the industry average somewhat closely with excavation damage and “Other Outside Force” as the leading two causes of incidents and making up about two thirds of the total incidents.

There are several items of note from this review of incident root causes:

1. “Material Failure of Pipe or Weld” makes up a marginally larger than typical percentage of incidents. I reviewed the narrative report provided with each incident report. The narratives indicate that this category of root cause is related to the thermal oxidation of a vintage plastic pipe – such as PVC and Aldyl-A. To clarify, the “8%” in this category of cause includes a total of **one** incident in the past decade, so while somewhat higher percentage, the absolute quantity is not egregious.
2. “Other Outside Force” is a somewhat catch-all category that can include many other causes. In the case of SWG, I reviewed the narrative report

provided with each incident report. The result of this review leads me to conclude that the vast majority of the “other outside force” incidents were caused by vehicle impacts to pipeline or regulator station infrastructure.

There was also one other incident caused by the theft of equipment.

Q. Given your review of SWG’s incident history and the relative severity, frequency, and root causes of such, what are your conclusions?

A. In general, SWG’s Arizona system has experienced a lower number of incidents per year when compared to the industry average and when adjusted for system size. The incidents that do occur on the SWG system are relatively less severe than the industry average by almost all metrics as discussed, above, and are generally caused by factors outside of the utility’s control.

Root causes and circumstances of the incidents that did occur in the last decade on SWG’s Arizona system raise no concerns regarding system safety, integrity, or in any way indicate an issue with aging infrastructure.

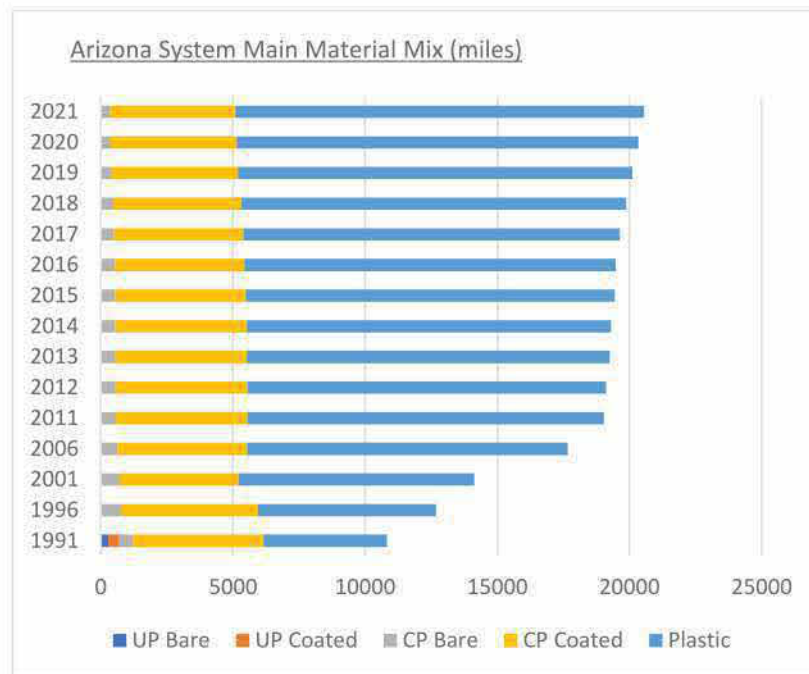
V. SWG’s Replacement Program Activities

Q. Would you please provide historical context for the pipe replacement activities that SWG has undertaken on its Arizona system?

A. SWG has been replacing leak-prone pipe in its distribution and transmission systems for many years. To gain context regarding the history of the system, I performed a 30-year analysis of the Company’s Arizona distribution system – looking at the piping materials SWG has had in its system over time. This analysis looked at the annual inventory of

1 distribution main in SWG's Arizona system for each of the last 10 years, and then every
2 5 years going back to 1991.

3 The findings of this analysis were somewhat atypical for SWG's Arizona system
4 when compared to many other utilities. Most utilities historically have had large
5 quantities of cast iron, bare steel, and unprotected steel pipe in their systems over this 30-
6 year time period and have been slowly phasing them out. SWG, on the other hand, has
7 not had large percentages of these materials in their Arizona system for at least 30 years.
8 As the figure below illustrates, the SWG Arizona system had no cast iron main, and has
9 eliminated most unprotected steel main by the early to mid-1990's and has been steadily
10 reducing its inventory of uncoated pipe for the last 25 years while the percentage of new
11 plastic pipe installed in the system grows.



12 **Figure JB-8.7 SWG historical main mileage by material**

Q. What material has SWG's pipe replacement program been focused on for the past few years?

A. As shown in Table JB-4, from 2019-2021 SWG has focused on replacing Steel pipe, as well as certain plastic pipes, such as Driscopipe. These pipes are not considered LPP and are representative of the relatively good condition of SWG's distribution system. The amount of steel pipe replaced decreased significantly with the ending of the VSP program.¹⁶ This decision was based on the lack of evidence supporting SWG's claims regarding the threat of vintage steel pipe.

Year	Steel	PE	PVC	3408
2019	68.8	33.1	5.5	0
2020	35.6	32.4	3.6	0
2021	5.4	21.7	0	4.0
2022	17.2	2.7	0	0

Table JB-4. Miles of pipe replaced by year and material from projects with a cost greater than \$1.5 million¹⁷

Q. Please describe the plastic pipe materials that SWG is replacing.

A. Plastic natural gas piping has a long history which involves the use of many materials, mixtures, and manufacturing processes.¹⁸ There are several types of vintage plastic pipe that were used at one point for gas distribution but have since been deemed at risk of cracking or degradation. Common vintage plastic types that are often the target of replacements include:

- PVC – at risk of accelerated cracks and fractures.

¹⁶ Decision 77850 at 90:11-19

¹⁷ Data compiled from the response to Data Request SWEEP 03-002, Att. 1

¹⁸ Plastic Pipe Database Committee, "Plastic Pipe Timeline." Available at <https://www.aga.org/contentassets/c139635bd829446eb292e2801b321e88/plastic-pipe-timeline-11-2019.pdf>

- 1 • Aldyl-A – this is the name of a Dupont plastic product produced from 1965
2 onwards. The concern with this pipe was largely confined to earlier variants of
3 Aldyl-A pipe. Poor plastic blends, bad manufacturing processes, and poor
4 resilience to construction hazards rendered much of this pipe at accelerated risk of
5 failures.¹⁹
- 6 • Older plastics in general – in 1999, 2002, and 2007, PHMSA and the NTSB issued
7 advisory bulletins warning operators of gas systems against the potential for older
8 plastics to leak.²⁰
- 9 • Driscopipe 8000/7000 – a specific plastic piping material that may exhibit higher
10 risk of cracking in high-heat environments. This issue is minor compared to the
11 concerns above and miniscule compared to other leak-prone pipe such as cast iron
12 or bare, unprotected steel.

13 In 2021, as well as in its current spending plan, SWG is targeting about 97% of its
14 efforts through 2032 on the Driscopipe materials referenced above.²¹ The basis for
15 targeting the M8000 and M7000 Driscopipe stems from the fact that these materials have
16 been flagged as potentially at-risk by a bulletin published by PHMSA.²² However,

¹⁹ California Public Utilities Commission, “Hazard Analysis and Mitigation Report: Aldyl A Polyethylene Gas Pipelines.” Available at <https://www.cpuc.ca.gov/-/media/cpuc-website/files/legacyfiles/r/8947-ra-doc-10-aldyla.pdf>

²⁰ PHMSA, “Pipeline Safety: Updated Notification of the Susceptibility to Premature Brittle-Like Cracking of Older Plastic Pipe.” Available at <https://www.federalregister.gov/documents/2007/09/06/07-4309/pipeline-safety-updated-notification-of-the-susceptibility-to-premature-brittle-like-cracking-of>

²¹ Response to Data Request SWEEP 04-001, Att. 2, included as Exhibit JB-5

²² PHMSA, “Pipeline Safety: Notice to Operators of Driscopipe 8000 High Density Polyethylene Pipe of the Potential for Material Degradation.” Available at <https://www.federalregister.gov/documents/2012/03/06/2012-5424/pipeline-safety-notice-to-operators-of-driscopipe-8000-high-density-polyethylene-pipe-of-the>

1 PHMSA's treatment of this potential risk factor is very mild in comparison to the
2 language used by them for other risk factors with higher incident rates and severity. For
3 example, PHMSA's stance^{23 24} on cast iron pipe is that all operators should have in place
4 a plan to identify and replace all cast iron pipe. PHMSA describes other vintage plastics
5 like Aldyl-A as having "Vulnerability of plastic piping to premature failures due to
6 brittle-like cracking". In these advisory bulletins, the language is significantly stronger
7 and there is evidence of failures and even reports of damage, injuries, and death.^{25 26 27}
8 None of these issues have been comparably found in issues with the types of Driscopipe
9 in SWG's system. In addition, the Commission declined to adopt an accelerated
10 replacement program focused on Driscopipe in the previous SWG rate case finding that
11 "the evidence does not establish the existence of an immediate public health and safety
12 concern regarding the condition of the 7000/8000 Driscopipe in the Company's
13 system."²⁸

²³ PHMSA, "Pipeline Safe Alert Notice (ALN-92-02)." Available at <https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/docs/RSPA%20Alert%20Notice%2092-02.pdf>

²⁴ PHMSA, "Pipeline Safety: Cast Iron Pipe (Supplementary Advisory Bulletin." Available at <https://www.federalregister.gov/documents/2012/03/23/2012-7080/pipeline-safety-cast-iron-pipe-supplementary-advisory-bulletin>

²⁵ PHMSA, "Potential Failure Due to Brittle-Like Cracking in Certain Polyethylene Plastic Pipe Manufactured by Century Utility Products, Inc.: Advisory Bulletin ADB- 99-01." Available at <https://www.federalregister.gov/documents/1999/03/11/99-6013/potential-failure-due-to-brittle-like-cracking-certain-polyethylene-plastic-pipe-manufactured-by>

²⁶ PHMSA, "Potential Failures Due to Brittle-Like Cracking of Older Plastic Pipe in Natural Gas Distribution Systems: Advisory Bulletin ADB-99-02." Available at <https://www.federalregister.gov/documents/1999/03/11/99-6051/potential-failures-due-to-brittle-like-cracking-of-older-plastic-pipe-in-natural-gas-distribution>

²⁷ PHMSA, "Pipeline Safety: Updated Notification of the Susceptibility to Premature Brittle-Like Cracking of Older Plastic Pipe: Advisory Bulletin ADB- 02-07." Available at <https://www.federalregister.gov/documents/2007/09/06/07-4309/pipeline-safety-updated-notification-of-the-susceptibility-to-premature-brittle-like-cracking-of>

²⁸ ACC Decision No. 77850 at 93:1-3

1 **Q. Do you believe any of the materials in the SWG system to be a threat to safety and**
2 **reliability to the degree that they warrant accelerated replacement?**

3 A. No. To the extent that SWG discovers future leaks on its system, I expect the Company to
4 make the necessary repairs and otherwise fulfill its obligation to provide safe and reliable
5 service to customers.

6 The threat to safety and reliability that the steel and vintage plastic materials in
7 the SWG system pose is well within the Company's ability to manage via regular
8 maintenance activities and the low leak rate on the Company's system are consistent with
9 a modern and safe system.

10 **VI. Gas Infrastructure and Investment Planning Requirements**

11 **Q. Given the factors you discuss above, what recommendations do you have for**
12 **investigating SWG's future infrastructure projects and investments moving**
13 **forward?**

14 A. As I discussed above, the gas transition presents an enormous risk to customers that
15 investments to expand and replace the gas system will become stranded before fully
16 depreciating. In addition, given the health and high performance of SWG's system, I
17 believe that the Company is over-investing in its system, needlessly expanding its rate
18 base, and further exacerbating this risk. Therefore, I recommend that the Commission
19 establish a process to provide greater scrutiny to SWG's proposed investments prior to
20 the Company making them minimize this risk. I refer to this as the Gas Infrastructure and
21 Investment Planning process, otherwise known as a Gas IIP. I discuss the specifics of my
22 recommendation in this section.

1 **Q. What is Gas Infrastructure and Investment Planning (Gas IIP) and what is its**
2 **purpose?**

3 **A.** Gas Infrastructure and Investment Planning (“Gas IIP”) is a regulatory process that
4 provides the Commission with a preview of investments and proposed capital projects
5 *before* they are executed, giving the Commission finer insights into SWG’s future
6 financial, analytical, and operational practices. The aim of this process is to protect
7 ratepayers from the burden of stranded assets in the future and aid the Commission in
8 navigating the transitions taking place in the gas industry today. Gas IIPs identify a long-
9 term development pathway for comparing the consumer, economic, and environmental
10 benefits of new infrastructure to non-pipeline alternatives, address the status of new
11 business and capacity expansion projects in between rate cases, and allow the
12 Commission to monitor potential investments in gas alternatives such as hydrogen and
13 renewable natural gas (“RNG”).

14 **Q. How is a Gas IIP reporting structure different from a Gas Integrated Resource Plan**
15 **(IRP)?**

16 **A.** Fundamentally, a Gas IIP process answers different questions than a Gas IRP. Gas IRP’s
17 serve the primary goal of selecting a portfolio of resources to reliably meet ratepayer
18 needs on a 10–20-year planning horizon, based on a combination of expected costs and
19 associated risks and uncertainties in the future. Gas IIP’s present a portfolio of
20 investments, summaries of the cost and bill impacts, and emissions impacts from
21 Southwest Gas’s preferred options, no-infrastructure options, and any other options
22 suggested in the long-term plan. Currently, the Commission has limited regulatory tools
23 besides ratemaking and customer programs to oversee the future infrastructure and
24 investments SWG proposed to make on behalf of its customers.

1 **Q. What do you recommend in regard to Gas IIP processes?**

2 **A.** I recommend that the Commission direct Southwest Gas to conduct and file a Gas IIP
3 every three years with a ten-year planning horizon.²⁹ The first Gas IIP should be filed at
4 least six months before Southwest Gas's next rate case application.

5 **Q. Should Southwest Gas conduct a Gas IIP for all of its future investments?**

6 **A.** No. I recommend that the Commission set a cost threshold for individual projects of \$2
7 million and that all projects with a projected cost over this budget must be included in the
8 Gas IIP and must include a robust analysis of alternatives to the project, including a no
9 action alternative. Under the Commission's current regulatory framework, SWG spends
10 funds for capital projects and operations and maintenance and then presents these
11 expenses for recovery only through a rate case. If the expenses are found prudent and to
12 the benefit of the public, utilities are allowed to recoup these costs from their customers
13 through rates and charges. However, even if costs are disallowed the project is already
14 completed at this point.

15 The challenge with this model is that it does not allow for a transparent planning
16 process where future expenses can be examined by stakeholders and the ACC before they
17 are undertaken and ensure that alternatives to gas infrastructure investments are
18 adequately considered, and the investments are justified. While natural gas utilities
19 regularly engage in prospective and long-term planning, this work is conducted internally
20 and not in a public, regulated venue. By contrast, electric utilities must regularly submit
21 plans to identify new generation and transmission resources to the ACC, who approves
22 utilities to procure these resources and recoup costs from their ratepayers.

²⁹ It is unlikely that SWG has developed capital plans beyond a 3-5 year period. Therefore, it may be prudent to require different granularity for projects within the next five year and those in year 5 to 10 of the Gas IIP.

1 **Q. Have other states considered revitalizing its gas utility planning focused on future**
2 **infrastructure investments?**

3 A. Yes. Public utility commissions (“PUCs”) across the country began adopting various gas
4 IRP rules due to the passage of the Energy Policy Action of 1992 (EPACT)³⁰ which
5 required PUCs to consider Integrated Resource Plans for Gas utilities because of the
6 strategic benefits they provided. In the past thirty years, more than 25 states across the
7 country have adopted traditional integrated resource planning rules for both electric and
8 gas utilities.³¹ However, more PUCs focused on robust electric IRP processes, leaving a
9 considerable regulatory gap in gas utility investments and infrastructure. Currently,
10 numerous states are discussing ways to revitalize gas utility planning processes, including
11 Hawaii,³² New York³³, and Colorado.³⁴

12 **Q. What reporting components do you recommend SWG report in a Gas IIP?**

13 A. Because SWG is planning significant investments in expanding its system while also
14 replacing existing assets, it is important to ensure that such activities serve the public
15 interest, and do not risk new assets becoming stranded, leaving the burden of repayment
16 on future customers. The Commission must scrutinize these proposals in order to

³⁰ See *“Primer on Gas Integrated Resource Planning,”* Lawrence Berkely National Laboratory, <https://eta-publications.lbl.gov/sites/default/files/report-lbnl-34144.pdf>

³¹ Regulatory Assistance Project, “Best Practices in Electric Utility Integrated Resource Planning,” Figure 2. Available at https://www.synapse-energy.com/sites/default/files/SynapseReport.2013-06.RAP_Best-Practices-in-IRP.13-038.pdf

³² See, Order No. 38189, Hawaii Public Utilities Commission, <https://dms.puc.hawaii.gov/dms/DocumentViewer?pid=A1001001A22A20A85615F00512>

³³ See, Case No. 20-G-0131, “Order Adopting Gas System Planning Process,” New York Public Service Commission, <https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={130B05B5-00B4-44CE-BBDF-B206A4528EE1}>

³⁴ See, Decision No. Decision C22-0427-I, Colorado Public Utilities Commission, https://www.dora.state.co.us/pls/efi/EFI_Search_UI.Show_Decision?p_session_id=&p_dec=29265

1 optimize the investments made on behalf of ratepayers. To better regulate future
2 infrastructure and investments, SWG should include data and metrics relating to its
3 demand and supply forecasts, system expenditures and investments, analysis of
4 infrastructure needs, All-Source Resource Comparison, and Summary of Public
5 Participation in its Gas IIP. Table JB-5 below presents examples of the data and analysis
6 that I recommend the Commission require in SWG's first Gas IIP.
7

Reporting Category	Reporting Data/Metric
Demand and Supply Forecasts	<ul style="list-style-type: none"> • Sales Forecast³⁵ (Low, Medium, High) • Customer counts • Capacity requirements (Each Year within five years) • Data, assumptions, and methodologies for development of forecasts
System Expenditures and Investments	<ul style="list-style-type: none"> • List of capital projects during the planning horizon with a cost over \$2 million <ul style="list-style-type: none"> ○ For each project the Company should include a description of the project, define the project need including its risk ranking criteria, assess the ability of non-pipeline alternatives to meet the project need, and provide a no-action scenario • List and description of all other capital expenditures not otherwise included in specific project • Total annual operating and maintenance expenses from the previous calendar year and forecast operating and maintenance expenses for each year during the planning horizon • Modeled Design Day capacity and the Company's plan to meet Design Day needs over the next five years • Plans for acquiring or developing alternative resources such as RNG or hydrogen to blend into the gas system and associated costs • Data on trends in customer gas usage (both actual and weather-normalized) by county or zip code, included data on customer adoption of specific gas end uses
Analysis of Infrastructure Needs	<ul style="list-style-type: none"> • List of planned projects ranked by cost and risk metrics, and interpretation of those results • Planned infrastructure costs identified as new customer vs. maintenance of existing system • Identify high priority projects and 5-year planned investments with non-pipeline alternatives considered
All-Source Resource Comparison	<ul style="list-style-type: none"> • Benefit-cost analysis for each non-pipeline alternative considered
Summary of Public Participation	<ul style="list-style-type: none"> • Summary of utility efforts to reach out to a variety of stakeholders, including low-income customers • Summary of stakeholder participation • Summary of how stakeholder feedback was or was not incorporated into the Gas IIP • Ability to contribute information and ideas, as well as to receive information • Opportunity to make relevant inquiries of the utility formulating the plan

Table JB-5. Components of proposed Southwest Gas Infrastructure and Investment Plan (Gas IIP)

³⁵ Forecasts should be disaggregated by functional components and geographical location to the extent possible so it can be utilized in assessment of All-Source Resource Comparisons.

1 **VII. Line Extension Policy**

2 **Q. What is SWG's current policy as it pertains to subsidizing line extensions for new**
3 **customers?**

4 A. As outlined in SWG's tariff, each new customer requesting gas service from SWG
5 includes the expected gas appliances they plan to install as part of its application. For
6 each new application, the Company conducts an Incremental Contribution Study to
7 determine the Allowable Investment based on the proposed equipment. The Allowable
8 Investment is determined by SWG as the expected revenue from the new customer based
9 on projected gas usage, less the incremental cost to serve the new customer that provides
10 a rate of return no less than the overall rate of return authorized by the Commission in
11 SWG's most recent rate case.³⁶ If the incremental cost to serve the new customer is less
12 than the Allowable Investment the Company installs the gas service at no cost to the
13 customer. If the incremental cost to provide service is greater than the Allowable
14 Investment, the Company charges the customer a Facility Charge to cover the difference
15 between the allowable investment and the incremental project cost. The amount of
16 construction costs paid for by the utility is known as a Construction Allowance or Line
17 Extension Allowance.

18 The Company assumes that customers will maintain the gas appliances specified
19 in the application for ten years in calculating the Allowable Investment.³⁷ The Allowable
20 Investment is determined at the time of the application and no true-up is done later to
21 compare actual usage against modeled usage.

³⁶ Southwest Gas Arizona Gas Tariff, Rule No. 6, Section 4

³⁷ Response to Data Request SWEEP 03-004(f), included as Exhibit JB-6

Q. What is the value of Construction Allowances provided by the Company in 2019, 2020, 2021?

A. As shown in Table JB-6 during 2019-2021 the residential class construction allowances averaged over \$21 million per year, with the average customer receiving a construction allowance of \$1,086. The average value for commercial construction allowances was \$3,000,000 during the same time period.

Year	2019	2020	2021
Commercial Class			
Total Value of Construction Allowances	\$2,877,958	\$3,034,247	\$3,322,576
Average Construction Allowance per Project	\$999	\$912	\$1,770
Residential Class			
Total Value of Construction Allowances	\$24,789,374	\$17,638,192	\$21,568,309
Average Construction Allowance per Project	\$1,017	\$1,149	\$1,092

Table JB-6. Total and average value of construction allowances by customer class 2019-2021.³⁸

Q. How would you characterize Construction Allowances?

A. I would characterize Construction Allowances as a subsidy for developers and new customers paid for by all other customers through base rates. Construction Allowances are included in base rates and borne by all customers. Thus, a portion of the increase in revenue that SWG is requesting in this case can be attributed to the line extension subsidies it has provided in the past.

Q. What are the reasons for the existence of line extension allowances?

A. Line extension allowances are a fairly common practice among utilities across the United States. Primarily, line extension allowances were established to promote customer growth

³⁸ Data compiled from response to Data Request SWEEP 03-004, included as Exhibit JB-6

1 and expansion of the system, with the idea that this would put downward pressure on
2 rates by spreading the fixed costs of the distribution system over a larger customer base.

3 **Q. Do the historical assumptions around line extension allowances still hold true today?**

4 A. I don't believe so. In order to put downward pressure on rates the new customer must
5 first pay back the full construction allowance through their rates. It will take up to ten
6 years for customers to pay back the allowance according to the methodology used by
7 SWG to determine the appropriate allowance for each customer. Thus, existing customers
8 could experience increased costs for 10 years after the subsidy is provided until they
9 "break even" relative to a scenario where the allowance is not granted.

10 As I discussed above, it is less costly for customers in both new and existing
11 homes to get heat and hot water from electricity vs. natural gas. Thus, while I assume
12 most new customers will use the original appliances over their expected life, which is
13 approximately ten years. I don't believe that it is reasonable to assume that they will
14 replace those appliances with a similar gas-fired system. Instead, more and more
15 customers will make the choice to electrify those end uses. This means that the
16 downward pressure on rates from a new customer will provide little, if any, benefits to
17 the existing customers who are paying for the original subsidy over the long term, while
18 saddling current customers with the cost of the line extension subsidy in the short term.

19 **Q. Are there other reasons to modify line extension allowances given the current**
20 **economics of electrification?**

21 A. Yes, there are. Most developers are familiar with gas-fired equipment and will likely
22 continue to install those technologies in the near term. However, as I have discussed at
23 length in my testimony, installing gas-fired equipment will saddle the future homeowner
24 with higher energy bills than if the developer had initially installed electric equipment to

1 provide heat and hot water. Thus, construction allowances are subsidizing equipment that
2 will hurt the future residents of new homes.

3 **Q. Is there a particular group of customers that is likely to be most exposed to the rate**
4 **increases from line extension allowances?**

5 A. Yes. As discussed above, those customers most exposed to the risk of stranded assets
6 presented by the gas transition are those who lack the resources or opportunity to
7 transition to electric appliances. These customers may be unable to afford the upfront cost
8 of transitioning their appliances, or they may be renters. Such customers are
9 disproportionately likely to be low-income.

10 Low-income customers also typically benefit the least from the line extension
11 subsidy, as they are less likely to purchase new construction homes.

12 **Q. Will ending line extension allowances raise the cost of housing in Arizona?**

13 A. I think it's unlikely. First, the difference in equipment and building costs between an all-
14 electric home and one with gas appliances is negligible when considering the total costs
15 of the home, as higher equipment costs are mostly offset by savings from avoiding piping
16 and ductwork.³⁹

17 Second, there are many drivers for rising home prices across SWG's service
18 territory. However, in a tight housing market, like exists in much of Arizona, the small
19 added cost of paying the full cost of extending the gas system is unlikely to be a key
20 factor in determining the final home price.

³⁹ Kolwey and Petroy, "Benefits of heat pumps for Southwest homes," at 27. Available at <https://swenergy.org/pubs/southwest-heat-pump-study-2022>

1 **Q. Will ending construction allowances remove customer choice of fuels?**

2 A. No. Customers and developers would still be able to choose to connect to the gas system.
3 They would just have to pay the full cost of that connection.

4 **Q. What are your recommendations for construction allowance policies?**

5 A. I recommend that the Commission end the policy of providing construction allowances
6 for new customers, and instead require all new customers to pay the full cost of
7 connecting to the gas system. For all the reasons I have laid out in my testimony,
8 maintaining gas construction allowances is no longer appropriate given the gas system
9 transition.

10 **VIII. Customer-Owned Yard Lines**

11 **Q. What is a Customer Owned Yard Line (“COYL”)?**

12 A. A COYL occurs when there is exterior gas piping that connects the meter to the customer
13 premise. As SWG only owns and operates infrastructure on the utility side of the meter,
14 this piping is owned, and must be maintained, by the customer.

15 **Q. Would you please describe the Company’s COYL Program and the purpose of the**
16 **COYL Program?**

17 A. In 2012, the Commission gave permission to establish a COYL program that would
18 survey existing COYLs and replace COYLs that were found to have leaks at no cost to
19 the customer.⁴⁰ In the interim years the program expanded to allow replacement of
20 COYLs that were not leaking. Since then, SWG has identified tens of thousands of
21 COYLs to replace and has replaced more than 29,656 COYL by relocating the customer

⁴⁰ ACC Decision No. 72723 (January 6, 2012)

1 meter to adjacent to the premise and replacing the COYL with a Company-owned service
2 line.⁴¹

3 In the Company's last rate case the Commission reduced the scope of the
4 Company's COYL program. Now the Company may only replace COYLs that are either
5 found to be leaking or at the same time as the Company is already performing other pipe
6 replacement activity in the area.⁴²

7 This rate case includes approximately \$7.1 million that is allocated to COYL
8 replacements, though additional COYL capital costs are recovered through a surcharge
9 mechanism.⁴³

10 **Q. How much does the Company spend on average to relocate a meter and replace a**
11 **COYL?**

12 A. In 2021 the average cost per COYL relocation was \$5,761.⁴⁴ However, the Company
13 recently signed a new contract with a vendor for COYL relocation in the Tucson area that
14 includes updated pricing. Under this new contract, the Company expects an increase of
15 41% in the total cost per COYL relocation, which would equate to an average cost of
16 over \$8,000 per COYL.⁴⁵

17 **Q. Do you have concerns with COYL program?**

18 A. Yes, I do. My concerns with the COYL program are similar to my concerns with all of
19 the Company's capital investment programs. The COYL program significantly expands
20 rate base and increases customer rates, while also increasing the stranded asset risk for
21 gas customers moving forward. In addition, by having all ratepayers subsidize the cost of

⁴¹ Response to Data Request Staff 03-008, Att. 1, included as Exhibit JB-8 at 15

⁴² Response to Data Request Staff 03-008, included as Exhibit JB-7

⁴³ Direct Testimony of Nick Liu at 4:2.

⁴⁴ Response to Data Request Staff 03-008, Att. 1, included as Exhibit JB-8 at 15

⁴⁵ Response to Data Request SWEEP 02-006(b), included as Exhibit JB-9 at 2

1 addressing leaking COYLs that should ultimately be the responsibility of the homeowner,
2 we are skewing the price signals for electrification in homes with COYLs. Given that a
3 homeowner would pay less over time by electrifying heating and hot water, most
4 customers would be better served by spending the subsidy going toward COYL
5 replacement on electrifying their appliances rather than increasing their gas rates and
6 maintaining their current infrastructure.

7 **Q. Are there benefits to the COYL program?**

8 A. Yes, there are. I am very cognizant that COYLs often occur in older homes, that are more
9 likely to be occupied by lower-income households. Without the COYL program, a
10 customer with a leaking COYL would face the prospect of a hefty repair bill to repair the
11 COYL or a large cost to replace their gas-fired equipment with electric alternatives.
12 During this time that customer would be without heat, hot water, or cooking, if they
13 currently rely on gas-fired equipment for those end uses. Thus, the COYL program
14 provides an important service to lower-income residents who may be required to go
15 without basic services if the program did not exist.

16 **Q. What are your recommendations regarding the COYL program?**

17 A. I recommend that the Commission end the COYL program, except for low-income
18 customers. I believe the high costs and concerns with the COYL program outweigh its
19 benefits. Under my proposal, a customer that has a leaking COYL would either need to
20 pay the full cost for the Company to relocate their meter or would need to hire a
21 contractor to address the leak in the COYL in order to maintain gas service. However, for
22 low-income customers I believe the COYL program provides benefits that are worth
23 maintaining. Thus, if a customer currently receives service through the Company's LIRA
24 program, they would be eligible for a meter relocation that the Company would be

1 allowed to include in rate base. Under my proposal, the current recovery of COYL capital
2 costs through a tracker mechanism would become unnecessary as the program would
3 decrease significantly in size.

4 **IX. Move2Zero Program**

5 **Q. What is the Move2Zero Program?**

6 A. SWG proposes a voluntary carbon offset program, which it calls the Move2Zero Program
7 (“Move2Zero”).

8 **Q. Please describe the Move2Zero program proposed by the Company.**

9 A. The Move2Zero program proposed by the Company would allow customers to
10 voluntarily purchase carbon reductions (called offsets) to “offset” the GHG emissions
11 associated with their gas usage. The Company claims that this program will provide a
12 voluntary option for customers to “reduce their carbon footprint and assist in reducing
13 GHG emissions.”⁴⁶

14 Under the Company’s proposed design, customers could purchase blocks of
15 carbon offsets through the program, with each block representing the equivalent of ten
16 therms of customer-related emissions.⁴⁷ The blocks would have a fixed cost per month
17 and customers could elect to purchase blocks to ‘offset’ some or all of their natural gas
18 usage.

⁴⁶ Direct Testimony of John Olenick 3:21-22

⁴⁷ Direct Testimony of John Olenick 5:1-4

1 The Company proposes that each block of offsets would cost \$5, though it states
2 that the final cost will not be determined until after offsets and administrative services are
3 procured for the program.⁴⁸

4 **Q. Can you summarize the role of carbon offsets in decarbonization?**

5 A. A carbon offset is intended to represent an incremental, additional emission reduction by
6 a non-regulated entity. In regulatory GHG programs, a regulated entity may purchase an
7 offset – often equal to one metric ton of CO₂e – which relieves that regulated entity of an
8 obligation to reduce its own direct emissions by one ton. In voluntary markets, carbon
9 offsets may be used in a similar manner: a company or individual may purchase offsets to
10 reduce their GHG emissions footprint, rather than reducing their own direct emissions.
11 Generally, carbon offsets are created in sectors that are difficult to regulate directly, such
12 as agriculture, land management, and abandoned coal mines, where financial incentives
13 such as a payment for offsets may catalyze GHG reductions. As with any carbon
14 reduction, because investment in an offset relieves an entity of their obligation to reduce
15 emissions directly (either to comply with regulations, or to meet corporate or personal
16 goals), it is essential that offsets are real, verifiable, additional, incremental, and
17 permanent. Otherwise, no benefits are generated from the program.

18 **Q. Do you have concerns about Move2Zero Program?**

19 A. Yes, I do. I have a number of concerns about the Move2Zero program proposal. First, I
20 am concerned about the veracity of GHG emission reductions claimed through carbon
21 offset programs and the benefits that this program will generate for SWG customers.

⁴⁸ Direct Testimony of John Olenick 5:20-6:5

1 Second, I am concerned about the marketing of the program as a way for
2 customers to reduce their environmental impact.

3 Third, I am concerned that the cost SWG will charge customers for offsets is out
4 of line with market costs for offsets.

5 Given the concerns I have with the integrity of carbon offset programs, monies
6 can be better spent on programs that will actually help a customer reduce their
7 environmental impact, such as energy efficiency and electrification of end uses that
8 currently run on gas.

9 **Q. Can you elaborate on how carbon reductions from offset programs are quantified?**

10 A. Quantifying carbon reductions through offsets is difficult as it hinges on determining the
11 counterfactual scenario, which cannot be directly observed, but rather must be estimated.
12 In a forestry or grassland conservation project, for example, an offset project developer
13 must estimate what would have happened to the land if the offset project did not occur. A
14 recent analysis of California's carbon offset market demonstrated that the program has
15 systematically over-credited forestry projects, which, as of 2020, account for
16 approximately 80% of the total offsets issued. The analysis found that forestry projects
17 are preferentially located in areas that, because of the protocol's crediting methodology,
18 generate more substantial credits than is warranted. Based on the projects analyzed,
19 which represented just over 100 million tons of CO₂e, the systematic over-crediting
20 resulted in the issuance of an excess of 30 million tons worth of credits, or 29.4 percent.⁴⁹

21 The example above, highlights potential crediting or accounting issues with
22 offsets. Crediting issues are not the only concern with offsets. Other potential issues with

⁴⁹ Grayson Badgley et al., Glob Change Biol., "Systematic over-crediting in California's forest carbon offsets program" (2021), Available at <https://onlinelibrary.wiley.com/doi/10.1111/gcb.15943>.

1 offset program are a concept called leakage. Leakage occurs when emissions are simply
2 shifted to another location. For example, does preserving one acre of grassland through
3 an offset project increase demand for development of an adjacent acre?

4 In addition, the vintage of an offset is also important. Some projects can generate
5 significant quantities of credits that may have happened well in the past. Purchasing older
6 credits is troubling because a customer would be paying for carbon reductions that are not
7 contemporaneous with the emissions they are 'offsetting'.

8 **Q. Are these concerns relieved by the Company's commitment to use offsets certified**
9 **by third-party registries?**

10 A. No. SWG states that it will only procure offsets from "widely used and reputable carbon
11 offset programs," and lists a few example carbon offset registries in its testimony.⁵⁰
12 However, the Company does not commit to any specific registries, project types, or offset
13 vintages. While using reputable registries is a good first step, it does not eliminate the
14 risk of acquiring offsets that are not generating real GHG emissions reductions. For
15 example, the example I described above of over-crediting under California's cap and
16 trade program, involves credits generated through a protocol developed by the Climate
17 Action Reserve, one of the registries listed by SWG.

18 In addition, in response to Discovery the Company would also not commit to
19 specific geographical locations or vintages for carbon offsets procured through the
20 program.⁵¹ With the registries listed by the Company the offsets could be generated
21 throughout the country and in parts of the developing world. Given this large
22 geographical scope and lack of data on project types, I am concerned about the ability of

⁵⁰ Direct Testimony of John Olenick 6:11-14

⁵¹ Response to Data Request SWEEP 02-001, included as Exhibit JB-10

1 the Company to appropriately scrutinize the veracity of the projects it is investing in.

2 Again, without strict oversight and details about these specifics I question the
3 environmental integrity of this program.

4 **Q. Are there other concerns that you have about the Company's proposed program**
5 **design?**

6 A. Yes, there are. While the Company states that it will finalize the cost of the program
7 following procurement of offsets and administration services, it provides a place holder
8 cost of \$5 for each block of offsets. As a reminder, each block will be equivalent to the
9 GHG emissions from 10 therms of usage.

10 Using emissions factors from the Environmental Protection Agency, one can
11 calculate that 10 therms of usage generates 53.1 kg of CO₂e, or about 0.05 metric tons.
12 Thus, customers in the program are spending approximately \$100/metric ton to offset
13 their emissions (\$5/0.05 metric tons). This is a lot to spend on carbon offsets. For
14 example, Terrapass (a Company that allows customers to buy offsets from the Climate
15 Action Reserve among other registries) charges less than \$16/metric ton for carbon
16 offsets that are similar in quality to what SWG is proposing.⁵² SWG claims that it will
17 not earn a profit from the Move2Zero program, but at the pricing they provide it appears
18 that the Company will be charging customers significant administrative fees to participate
19 in the program presenting overall program costs that are inconsistent with those available
20 directly to customers in the open market.

21 **Q. Do customers want this program?**

22 A. We don't know. The Company has not done any surveys of customers to show interest in
23 this program or presented any evidence that customers are looking for their gas utility to

⁵² See, <https://terrapass.com/product/personal-carbon-offset-grouped>

1 offer such a program.⁵³ Nor does the Company have any enrollment targets for the
2 program, if approved.

3 **Q. What are your recommendations for the Move2Zero program?**

4 A. I recommend that the Commission reject this proposal. Given the questions around
5 carbon offsets I raised above, one must be very diligent in procuring offsets and
6 providing oversight of a program such as this. SWG has not provided enough detail for
7 this program design to give me any assurance that the Company will offer a program that
8 can provide real environmental benefits. If the Company wants to help customers reduce
9 their carbon footprint, program that produce real benefits for customers, such as energy
10 efficiency and electrification, would be a better focus than carbon offsets.

11 In addition, the pricing put forward by SWG appears to have significant
12 administrative costs tacked on to the cost for offsets, potentially taking advantage of
13 customers who do not have an advanced knowledge of the carbon offset market.

14 Finally, the Company has not provided any marketing materials or detail about
15 how it plans to market the program and has provided no evidence that customers are
16 interested in a program like this.

17 For these reasons, I recommend that the Commission reject this proposal. There is
18 nothing stopping SWG customers from procuring their own carbon offsets outside of this
19 program if they choose.

⁵³ Response to Data Request SWEEP 02-001(h), included as Exhibit JB-10

X. Low Income Ratepayer Assistance Program

Q. How does the Company's Low Income Ratepayer Assistance ("LIRA") program currently work?

A. Currently, customers that qualify based on income receive both a 30% reduction in their monthly basic service charge year round as well as a 30% per therm discount on the first 150 therms of gas used between November 1 and April 30.⁵⁴

Q. Is the Company proposing any modifications to its LIRA program?

A. Yes, SWG proposes a number of changes to the LIRA program. First, the Company proposes to change the eligibility requirements for participation in the program from households with an annual income at or below 200 percent of the Federal Poverty Level ("FPL") to households with an annual income at or below 250 percent of the FPL. Second, the Company proposes to extend the 30% volumetric discount to all months, instead of only providing the discount during the winter months. The Company estimates that this change will increase the LIRA adjustment by approximately \$1.6 million.

Q. What are your recommendations related to the LIRA program?

A. I recommend that the Commission approve SWG's proposed modifications to the LIRA program. The war in Ukraine and other global factors have caused a significant increase in natural gas commodity prices over the past few months. When coupled with high inflation in many parts of the economy, families are currently struggling with their energy bills. I support the Company's proposal to expand eligibility for the LIRA program and

⁵⁴ Direct Testimony of Matthew D. Derr at 9:18-24

1 provide a year-round volumetric discount. These changes will help reduce the energy
2 burden of qualifying households.

3 **XI. Conclusions**

4 **Q. Please summarize your recommendations to the Commission in this case.**

5 A. I recommend the following:

- 6 • Based on my analysis of the condition of SWG's Arizona system, it is in
7 generally good condition and contains minimal leak-prone materials. Therefore,
8 SWG's system does not require extensive or accelerated repair or replacement
9 beyond typical maintenance.
- 10 • Adopt a reporting process for SWG known as the Gas Infrastructure and
11 Investment Plan to provide transparency into SWG's capital planning and help the
12 Commission navigate the gas transition.
- 13 • End construction allowances for new residential and non-residential customers,
14 and instead require all new customers to pay the full cost of connecting to the gas
15 system.
- 16 • End the Customer-Owned Yard Line Program for all customers with the
17 exception of those on a low-income rate plan.
- 18 • Reject the proposal to adopt the Move2Zero carbon offset program.
- 19 • Approve the proposed modifications to the LIRA Program.

20 **Q. Does this conclude your Direct Testimony?**

21 A. Yes.

Exhibit JB-1

QUALIFICATIONS

Justin B. Brant

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Professional Experience

Utility Program Director, Southwest Energy Efficiency Project, Boulder, CO, 2020-present; Senior Associate 2018-2020.

- Collaborate with utilities, NGOs, state policy makers, and industry groups to develop and implement innovative demand-side management, utility business model reform, building electrification, and electricity pricing policies and programs.
- Serve as an expert witness before Public Utility Commissions in utility rate cases, Integrated Resource Plans, and other dockets related to decarbonization.
- Negotiate settlements and consensus policy positions with utility leadership, PUC staff, and state policy makers.
- Work with utility staff and executives to develop and build support for distributed energy resource deployment.
- Lead internal and external teams to develop and expand utility programs to use buildings to provide grid services and create customer value.
- Review and provide input on energy and cost modeling results, assumptions, and inputs.
- Educate policymakers on the benefits of energy efficiency and customer energy programs.
- Develop organizational strategy around key issues and lead implementation of strategic initiatives.
- Track key performance metrics for electric utilities related to financial and environmental performance.
- Manage project budgets and ensure that priority projects are delivered on time.
- Develop web content, public reports, technical reports, and policy briefs.
- Track emerging technologies in building automation, building energy management, electric vehicles, HVAC systems, utility rate design, utility business model reform, and utility planning.

Associate, GHG & Sustainability Practice, The Cadmus Group, Boulder, CO, 2016-2018.

- Consult with C-suite, universities, and utilities on sustainability initiatives, energy policy, grid modernization, energy efficiency, and renewable energy procurement.
- Manage multi-million dollar multidisciplinary project teams to deliver desired outcomes on time and within budget, including developing project budgets and work plans.
- Develop plans to reach 100% renewable goals for local governments and large corporations.
- Lead business develop efforts with utilities and companies big and small.
- Develop basic energy, cost, and greenhouse gas models.
- Consult with local, state, and federal government agencies on climate change and renewable energy policy development.

- Manage and mentor staff.

Interim Director, Electric Power Division, Massachusetts Department of Public Utilities, Boston, MA, 2015-2016, Assistant Director 2013-2015. Public Utility Analyst, 2011-2013.

- Oversee subject matter experts across the agency to ensure rigorous and timely review of large and complex utility regulatory filings.
- Develop state policies to mitigate climate change in the electric and natural gas sectors.
- Remove barriers to deployment of emerging electric grid applications such electric transportation, energy storage, and building electrification.
- Track ISO-NE market and participate in state efforts to influence market policy changes.
- Responsible for hiring, developing, coaching, and managing a staff of 15.
- Lead review of utility cost recovery and rate design proposals.
- Represent the agency with stakeholder groups, decision makers, and the general public.
- Lead electric utility grid modernization and electric vehicle charging infrastructure development.
- Create business case requirements used to justify utility investments.
- Review and approve utility contracts for wind and solar development.
- Develop state policies around net metering and interconnection of renewable resources.
- Manage consulting contracts and departmental budgets.

Climate Change Policy Analyst, WA Department of Ecology, Lacey, WA, 2008-2011.

- Lead research and strategic development of state energy and climate mitigation policy.
- Report findings to the state legislature through white papers and in-person testimony.
- Participate in design of low-carbon fuel standards, cap-and-trade programs, and state regulation of GHGs under the Clean Air Act.
- Work closely with electric utilities, industry representatives, clean technology industry leaders, state agency staff, and the environmental community on climate change policy development.

Environmental Scientist, ENSR/AECOM, Seattle, WA, 2007-2008.

Education

Master of Science, Soil Science, Oregon State University, Corvallis, OR, 2005.

Bachelor of Arts, Biology, Wesleyan University, Middletown, CT, 2001.

Exhibit JB-2

Southwest Gas Corporation
Docket No. G-01551A-21-0368
Response to Arizona Grain 02-03

AZ Direct Additions 12-31-2019 through 8-31-2021

Row Labels	Sum of activity_cost
New Business	184,307,738.79
361.00 Structures & Improvements	355,346.45
362.00 Gas Holders	786,257.55
363.20 Vaporizing Equipment	217,119.93
363.30 Compressor Equipment	185,593.07
363.50 Other Equipment	219,899.37
374.10 Land & Land Rights	325,000.00
374.20 Rights-of-Way	28,479.55
376.00 Mains	62,473,540.12
378.00 Meas & Reg Sta Eq, General	2,174,234.43
380.00 Services	67,729,531.28
381.00 Meters	37,121,567.85
385.00 Industrial M&R Station Equip	904,447.13
389.00 Land & Land Rights	93,174.00
390.10 Structures & Improvements	2,050,942.52
391.00 Office Furniture & Equipment	50,030.44
391.10 Computer Equipment	531,624.92
392.11 Transportation Equip, Light	861,251.63
392.12 Transportation Equip, Heavy	360,244.68
393.00 Stores Equipment	112,715.51
394.00 Tools, Shop & Garage Equipmt	4,778,453.27
396.00 Power Operated Equipment	826,873.70
397.00 Communication Equipment	(550.40)
398.00 Miscellaneous Equipment	2,121,961.79
Other Replacement	249,017,988.37
302.00 Franchises & Consents	155,758.74
374.20 Rights-of-Way	359,784.89
376.00 Mains	154,002,412.69
378.00 Meas & Reg Sta Eq, General	5,930,628.03
380.00 Services	73,517,386.65
381.00 Meters	810,861.77
385.00 Industrial M&R Station Equip	285,061.28
390.10 Structures & Improvements	323,662.82
391.00 Office Furniture & Equipment	4,047.52
391.10 Computer Equipment	673,284.63
392.11 Transportation Equip, Light	6,412,064.26
392.12 Transportation Equip, Heavy	4,816,397.04
393.00 Stores Equipment	68,451.05
394.00 Tools, Shop & Garage Equipmt	989,375.63
396.00 Power Operated Equipment	558,837.86
398.00 Miscellaneous Equipment	109,973.51
Vintage Steel Pipe	16,518,999.26
376.00 Mains	25,356,728.83
380.00 Services	(8,837,729.57)
Grand Total	\$ 449,844,726.42

Investments made to General Plant by Ferc Account

Row Labels	Sum of activity_cost
Common Plant (System Alloc), 0999	170,992,373.13
303.01 Software Development	119,874,096.09
389.00 Land & Land Rights	1,802,975.00
390.10 Structures & Improvements	30,837,305.81
390.20 Leasehold Improvements	174,664.26
391.00 Office Furniture & Equipment	4,528,647.73
391.10 Computer Equipment	11,001,331.19
392.11 Transportation Equip, Light	259,385.14
394.00 Tools, Shop & Garage Equipmt	76,511.94
395.00 Laboratory Equipment	201,751.69
396.00 Power Operated Equipment	222,838.75
397.00 Communication Equipment	280,608.89
398.00 Miscellaneous Equipment	1,732,256.64
Grand Total	170,992,373.13

Exhibit JB-3

SOUTHWEST GAS CORPORATION
DOCKET NO. G-01551A-21-0368
SWEEP 2.8
ADDED ASSETS OVER \$1.5M BY PLANT ACCOUNT, MONTH NUMBER, AND WORK ORDER
FEBRUARY 2019 THROUGH AUGUST 2021
ARIZONA RATE JURISDICTION

Workorder	Project Description	Long Description	Final Project Cost	Project Estimate	Project Classification	Alternatives to the project considered or analyzed
0036W0001918	SOUTHERN ARIZONA LNG STORAGE	SOUTHERN ARIZONA LNG STORAGE PROJECT	\$73,008,743	\$ 80,000,000	RELIABILITY	DESIGN ALTERNATIVES CONSIDERED
0032W0003397	VALLEY OPS BUILDING	CONSTRUCTION AND ARCHITECTURAL FEES FOR NEW CASA GRANDE BUILDING. ARCHITECT/PERMIT FEES \$378,265.29 / CONSTRUCTION COST \$8,500,000. ORIGINAL W/O \$372,000. NEW W/O AMOUNT \$8,900,000	\$9,773,221	\$ 9,950,000	GENERAL PLANT	
0042W3430120	FRE 2019 VSP PRPE 21 UA SYS ST	INS 10,062'-6" STL & 10'-4" STL 720PSIG MAIN. RET 7387'-FT STL MAIN (6864'-4" STL; 490'-3" STL; DESIGN NEW HIGH PRESSURE MAIN ALONG COTTON LN FROM OLIVE AVE TO INDIAN SCHOOL RD	\$6,474,294	\$ 4,486,220	REPLACEMENT	LEASE VERSUS PURCHASE ANALYSIS PERFORMED
0042W3646450	NBW "VV" EXTENSION- COTTON LN:		\$6,191,488	\$ 7,560,087	NEW BUSINESS	REPLACEMENT REQUIRED
0042W3433776	HPTE - 2019 VSP - FP359 "K" SY	REPLACE APROX 2 MI OF 6" HP STL MAIN WITH 8", 0.322 WT, X-52 STL MAIN & REPLACE DR 424310 & DR	\$6,015,539	\$ 5,514,723	REPLACEMENT	NEW BUSINESS
0042CB010000	BLANKET WORK ORDER - NEW MAINS	BLANKET WORK ORDER - NEW MAINS	\$5,729,100	N/A	NEW BUSINESS	REPLACEMENT REQUIRED
0042W3577330	HPTW FP341 VSP T SYS REPL PH4	VSP - REPLACE 8" STL HP WITH 12" STL PIPE ON 27TH AVENUE FROM MARYLAND TO NORTHERN	\$5,708,772	\$ 5,310,755	REPLACEMENT	NEW BUSINESS
0042W3585685	DISTRIBUTION PROJECT WEST - NCDP	REPLACE 30,500' OF 2" PE MAIN WITH 2" PE8100	\$5,374,238	\$ 4,418,020	REPLACEMENT	REPLACEMENT REQUIRED
0042W3576711	HPTW-VSP FP335 TRANSMISSION RE	VSP - REPLACE 1.65 MILES OF 6" TRANSMISSION MAIN WITH NEW 12" STEEL PIPE.	\$4,599,280	\$ 4,584,818	REPLACEMENT	REPLACEMENT REQUIRED
0036W3630498	FN: HOUGHTON RD - VALENCIA RD	HOUGHTON RD 12" TRANSMISSION RELOCATIONS	\$4,224,594	\$ 51,640,090	FRANCHISE	REPLACEMENT REQUIRED
0036CB044000	BLANKET WORK ORDER-NEW RANDOM	BLANKET WORK ORDER - NEW RANDOM SERVICE IN CUSTOMER PROVIDED TRENCH	\$4,217,486	N/A	NEW BUSINESS	REPLACEMENT REQUIRED
0036W3392049	SI HP: MIDTOWN FEEDER REPLACEM	MIDTOWN FEEDER PH 7A HIGH PRESSURE REPLACEMENT SANTA RITA AVE/MANLOVER ST/14TH ST/HIGHLAND AVE/	\$4,114,695	\$ 4,220,639	REPLACEMENT	NEW BUSINESS
0042W3433778	HPTE - FP 357 PH. 2: "K" SYSTE	REPLACE APROX 5,700-FT OF 8" STL PIPE WITH 8"	\$4,101,803	\$ 2,907,019	REPLACEMENT	REPLACEMENT REQUIRED
0042W3605844	HPTE - 2019 VSP - FP354 PH 1 "	REPLACE HIGH PRESSURE MAIN	\$4,087,746	\$ 4,155,641	REPLACEMENT	REPLACEMENT REQUIRED
0042W3632793	HPTW - WV SYSTEM PRESSURE REIN	INSTALL 1 MILE OF 12" HP AND MOP UPRATE EXISTING SECTION OF 6" HP ON VW SYSTEM	\$3,956,630	\$ 3,558,954	REPLACEMENT	REPLACEMENT REQUIRED
0042W3575684	HPTW-FP340 T SYS REPL PH II-27	REPLACE 1 MI. OF 10" STEEL TRANSMISSION MAIN (VINTAGE YEAR 1950 & 1951) WITH NEW 12" STEEL - 27	\$3,794,835	\$ 3,790,374	REPLACEMENT	
0036W3423472	VSP REPL (2019)- ATLAS 17, GLE	VINTAGE STEEL REPLACEMENT PROJECT	\$3,709,957	\$ 3,975,881	REPLACEMENT	REPLACEMENT REQUIRED
0042CB013000	BLANKET WORK ORDER - FRANCHISE R	BLANKET WORK ORDER - FRANCHISE REPLACEMENT MAIN	\$3,675,539	N/A	FRANCHISE	REPLACEMENT REQUIRED
0032CB025000	BLANKET WORK ORDER - REPLACEMEN	BLANKET WORK ORDER - REPLACEMENT SERVICES	\$3,652,793	N/A	REPLACEMENT	REPLACEMENT REQUIRED
0042W3576656	HPTW-VSP FP335 "C" SYSTEM TRAN	VSP - REPLACE 1.2 MILES OF 6" TRANSMISSION MAIN WITH NEW 8" STEEL PIPE.	\$3,629,503	\$ 4,214,473	REPLACEMENT	REPLACEMENT REQUIRED
0036W3501500	FN HP: LA CHOLLA BLVD OVERTON	LA CHOLLA BLVD HIGH PRESSURE REPLACEMENT FOR ORO VALLEY / PIMA COUNTY ROADWAY WIDENING	\$3,522,081	\$ 5,469,929	FRANCHISE	
0034CB025000	BLANKET WORK ORDER - REPLC SERVIC	BLANKET WORK ORDER - REPLACEMENT SERVICES	\$3,471,327			REPLACEMENT REQUIRED
0042W3605453	HPTE - 2019 VSP - FP354 PH2 "K	REPLACE HIGH PRESSURE MAIN	\$3,421,963	\$ 3,812,982	REPLACEMENT	REPLACEMENT REQUIRED
0047W3625214	VSP (2019): N TACOMA-FORT AVE.	VINTAGE STEEL PIPE DISTRIBUTION REPLACEMENT	\$3,209,973	\$ 3,455,733	REPLACEMENT	REPLACEMENT REQUIRED
0036W3690197	VSP (2019): MIDTOWN FEEDER REP	VSP (2019): MIDTOWN FEEDER REPLACEMENT 19TH ST - EUCLID TO 10TH AVE	\$3,168,537	\$ 3,440,177	REPLACEMENT	REPLACEMENT REQUIRED
0032CB015000	BLANKET WORK ORDER - REPLACEMEN	BLANKET WORK ORDER - REPLACEMENT MAINS	\$3,165,668	N/A	REPLACEMENT	REPLACEMENT REQUIRED
0048W3635806	VSP (2019) - AVE B - 16TH ST	VINTAGE STEEL REPLACEMENT AVE B - 16TH ST TO 32ND ST	\$3,130,635	\$ 2,310,537	REPLACEMENT	REPLACEMENT REQUIRED
0042W3393779	HPTE- FP347 "J" SYSTEM MAIN ST	REPLACE 6" STL TRANSMISSION MAIN WITH NEW 10" STL HP MAIN	\$3,100,285	\$ 3,575,850	REPLACEMENT	REPLACEMENT REQUIRED
0036W3492953	PE8000 (2018) - ATLAS 0039, BA	PEM8000 REPLACEMENT- NCDP/FTIR	\$3,058,466	\$ 2,846,545	REPLACEMENT	REPLACEMENT REQUIRED
0042W3674841	DISTRIBUTION PROJECT EAST - RISK AS	REPLACE ALL 3/4" STEEL SVC VINTAGE 1953 IN GRID 20-24. ALONG WITH RELATED STEEL MAINS.	\$2,975,113	\$ 2,177,985	REPLACEMENT	REPLACEMENT REQUIRED
0033W3625993	VSP (2019): CLIFTON/MORENCI VS	REPLACE VINTAGE STEEL AND ASSOCIATED SERVICES.	\$2,942,750	\$ 3,081,209	REPLACEMENT	REPLACEMENT REQUIRED

0036W3625700	SI HP: MIDTOWN FEEDER REPLACEMENT	REPLACE EXISTING 8" & 6" HP STEEL W/ 12" HP STEEL ALONG 19TH ST, FREMONT AVE, AND 17TH ST.	\$2,930,185	\$	3,279,025	REPLACEMENT	
0042W3646799	C SYSTEM REPLACEMENT- INDIAN SCHOOL RD	REPLACE EXISTING 4" HP STEEL MAIN W/ 12" HP STEEL MAIN ALONG INDIAN SCHOOL RD FROM CITRUS RD TO REVISION: CHANGED BUDGET ITEM FROM 9605 TO 9638 AND MAJOR PROJECT CODE/FUNDING PROJECT FROM "VINTAGE STEEL PIPE RPL" TO "MAIN AND SVC RPL".	\$2,891,155	\$	2,549,441	REPLACEMENT	REPLACEMENT REQUIRED
0036CB010000	BLANKET WORK ORDER - NEW MAINS DISTRIBUTION PROJECT WEST 2019 DIM	BLANKET WORK ORDER - NEW MAINS REPLACEMENT SERVICES IDENTIFIED ON RISK ASSESSMENTS IN 2018	\$2,881,894	N/A		NEW BUSINESS	REPLACEMENT REQUIRED
0042W3669576		REPLACE EXISTING 4" HP STEEL MAIN W/ 12" HP STEEL MAIN ALONG INDIAN SCHOOL RD FROM CITRUS RD TO REVISION: CHANGED BUDGET ITEM FROM 9605 TO 9638 AND MAJOR PROJECT CODE/FUNDING PROJECT FROM "VINTAGE STEEL PIPE RPL" TO "MAIN AND SVC RPL".	\$2,881,146	\$	2,180,471	REPLACEMENT	NEW BUSINESS
0048W3636844	VSP (2019): 7TH AVE TO 14TH AV	VINTAGE STEEL REPLACEMENT 7TH AVE TO 14TH AND 6TH	\$2,875,383	\$	2,860,278	REPLACEMENT	REPLACEMENT REQUIRED
0042W3935063	FRE 2020 VSP UA SYSTEM STL REP	INSTALL 1370'-6" STL 720PSIG FEEDER MAIN. RETIRE 4676'-4" STL, 476'-3" STL, & 33'-2" STL FEEDER	\$271,101	\$	396,198	REPLACEMENT	REPLACEMENT REQUIRED
0036W3625925	STL: ATLAS 0023, NW QUAD, N. O	STEEL REPLACEMENT, RISK ASSESSMENT	\$2,859,709	\$	2,656,994	REPLACEMENT	REPLACEMENT REQUIRED
0042W3576846	HPTW-FP24 TRIMP E-SYSTEM REPLACEMENT	REPLACE 1.2 MILES OF 5" STEEL HP MAIN WITH 8" STEEL PIPE	\$2,825,896	\$	3,245,816	REPLACEMENT	REPLACEMENT REQUIRED
0036W3618219	VSP (2019): ATLAS 27 & 103, GR	VINTAGE STEEL REPLACEMENT PROJECT	\$2,815,806	\$	2,776,604	REPLACEMENT	REPLACEMENT REQUIRED
0048CB026000	BLANKET WORK ORDER - NCDP PE SERVICE	BLANKET WORK ORDER - SERVICE REPLACEMENT DUE TO SUSPECTED PE PIPE DEGRADATION	\$2,812,871	N/A		REPLACEMENT	REPLACEMENT REQUIRED
0036CB013000	BLANKET WORK ORDER - FRANCHISE REPLACEMENT	BLANKET WORK ORDER - FRANCHISE REPLACEMENT MAIN	\$2,802,836	N/A		FRANCHISE	REPLACEMENT REQUIRED
0042W3482532	DISTRIBUTION PROJECT EAST - 2018 DP	REPLACE '49 & '50 MAIN AND SERVICES	\$2,800,424	\$	1,995,101	REPLACEMENT	REPLACEMENT REQUIRED
0036W3501545	FN: KOLB RD SABINO CANYON RD T	RELOCATE & REPLACE EXISTING PE MAIN & SERVICES ON KOLB ROAD FROM SABINO CANYON RD TO SUNRISE DR	\$2,783,236	\$	3,749,874	FRANCHISE	REPLACEMENT REQUIRED
0042W3607327	HPTE - 2019 FP 329 PH2 HAYDEN	REPLACE APPROX 4900' OF 10" HP STL MAIN WITH 12", 0.375" WT, X-52 STL MAIN	\$2,734,311	\$	2,214,178	REPLACEMENT	REPLACEMENT REQUIRED
0047CB026000	BLANKET WORK ORDER - NCDP PE SERVICE	BLANKET WORK ORDER - SERVICE REPLACEMENT DUE TO SUSPECTED PE PIPE DEGRADATION	\$2,724,085	N/A		REPLACEMENT	REPLACEMENT REQUIRED
0032W3639037	SI (2018): KILBRIGHT AVENUE -	VINTAGE STEEL PIPE REPLACEMENT - AJO	\$2,592,258	\$	2,015,013	REPLACEMENT	REPLACEMENT REQUIRED
0042W3407793	FRANCHISE WEST FP 375 'E' SYS MAIN	REPLACE 1 MILE OF 5" STEEL MAIN WITH 8" STEEL PIPE	\$2,586,496	\$	2,770,200	REPLACEMENT	REPLACEMENT REQUIRED
0042CB043000	BLANKET WORK ORDER - NEW RANDOM SERVICE	BLANKET WORK ORDER - NEW RANDOM SERVICE IN SWG PROVIDED TRENCH	\$2,558,830	N/A		NEW BUSINESS	NEW BUSINESS
0047W3698403	VSP(2019): GREATLAND ROAD HP R	HP VSP MAIN REPLACEMENT	\$2,553,430	\$	2,877,556	REPLACEMENT	REPLACEMENT REQUIRED
0047W3617119	PVC (2019) - REGENCY & ESSEX	REPLACE APPROXIMATELY 19,000' OF PVC MAIN	\$2,543,068	\$	2,377,761	REPLACEMENT	REPLACEMENT REQUIRED
0032W3201290	SI: PVCREPL (2017) - ATLAS 306	REPLACE 13,212' OF PVC WITH NEW PE8100 MAIN	\$2,541,501	\$	1,017,273	REPLACEMENT	REPLACEMENT REQUIRED
0036W3859808	FTIR: ATLAS 0117, SW QUAD: KOL	PEM8000 REPLACEMENT- FTIR	\$2,488,893	\$	2,512,729	REPLACEMENT	REPLACEMENT REQUIRED
0032CB041000	BLANKET WORK ORDER - NEW SERVICE SUBDIVISION	BLANKET WORK ORDER - NEW SERVICE SUBDIVISION	\$2,465,362	N/A		NEW BUSINESS	NEW BUSINESS
0047W3694160	NB(2019): FT. HUACHUCA CHP HP	FT HUACHUCA CHP HP MAIN EXTENSION	\$2,459,258	\$	2,410,280	NEW BUSINESS	NEW BUSINESS
0042W3481187	DISTRIBUTION PROJECT EAST-DPI 2018	REPLACE ALL 3/4" STL '51 SVCS & ASSOCIATED STEEL MAIN WITH PE8100	\$2,458,608	\$	2,044,913	REPLACEMENT	REPLACEMENT REQUIRED
0036W3634594	VSP: (2019) ATLAS 0307, RIVER	VINTAGE STEEL REPLACEMENT PROJECT	\$2,375,070	\$	2,402,521	REPLACEMENT	REPLACEMENT REQUIRED
0036W3309469	FN: BROADWAY BLVD: CAMINO SECO	DISTRIBUTION REPLACEMENT ASSOCIATED WITH BROADWAY ROAD RECONSTRUCTION	\$2,317,884	\$	2,452,455	FRANCHISE	REPLACEMENT REQUIRED
0046W3638402	VSP (2019): UPPER PINAL CREEK	VINTAGE STEEL PIPE REPLACEMENT - GLOBE	\$2,210,704	\$	2,377,140	REPLACEMENT	REPLACEMENT REQUIRED
0042CB025110	BLANKET WORK ORDER - COYL REPLACEMENT	BLANKET WORK ORDER - CUSTOMER OWNED YARD LINE REPLACEMENT - PHASE 2	\$2,190,884	N/A		COYL RELOCATION	REPLACEMENT REQUIRED
0034CB043000	BLANKET WORK ORDER - NEW RANDOM SERVICE	BLANKET WORK ORDER - NEW RANDOM SERVICE IN SWG PROVIDED TRENCH	\$2,178,174	N/A			REPLACEMENT REQUIRED
0046W3442669	SI: VSP REPL (2018) - HACKNEY	VSP: HACKNEY AVE - ASH ST TO EAGLES BLUFF	\$2,171,533	\$	2,254,152	REPLACEMENT	REPLACEMENT REQUIRED
0036W3653383	FTIR (2019) - ATLAS 0012, STON	PEM8000 REPLACEMENT- FTIR	\$2,139,674	\$	2,385,784	REPLACEMENT	REPLACEMENT REQUIRED
0036W3422082	VSP (2019) - ATLAS 0004, PARK	VINTAGE STEEL REPLACEMENT PROJECT	\$2,117,174	\$	2,117,796	REPLACEMENT	REPLACEMENT REQUIRED
0032CB030000	BLANKET WORK ORDER - NEW METERS	BLANKET WORK ORDER - NEW METERS	\$2,068,699	N/A		NEW BUSINESS	NEW BUSINESS
0032W3647243	VSP (2019): GILA BEND 3" STEEL	3" VINTAGE STEEL REPLACEMENT	\$2,064,418	\$	2,367,280	REPLACEMENT	REPLACEMENT REQUIRED
0036W3859812	DIMP: ATLAS 0034, 3RD ST & BEL	PEM8000 REPLACEMENT	\$2,046,202	\$	2,093,053	REPLACEMENT	REPLACEMENT REQUIRED
0036W3634555	FTIR (2020): ATLAS 1340, LORD	PEM8000 REPLACEMENT	\$2,023,786	\$	2,288,125	REPLACEMENT	REPLACEMENT REQUIRED
0042W3605861	HPTE - 2019 VSP FP 357 PH 3 "	REPLACE HIGH PRESSURE MAIN	\$2,021,629	\$	3,003,354	REPLACEMENT	REPLACEMENT REQUIRED
0036W3743127	DIMP (2019) - ATLAS 33, DODGE	PE8000 REPLACEMENT	\$2,013,260	\$	1,578,088	REPLACEMENT	REPLACEMENT REQUIRED
0036W3998803	FN ADOT SR77 I-10 TO RIVER RD	REPLACE EXISTING STEEL & PE MAIN & SERVICES DUE TO CONFLICTS WITH ADOT ROADWAY PAVEMENT IMPROVE	\$2,012,021	\$	2,058,624	FRANCHISE	REPLACEMENT REQUIRED
0042W3708438	DISTRIBUTION PROJECT WEST 2019 VSF MAIN REPLACEMENT		\$1,986,177	\$	2,307,434	REPLACEMENT	REPLACEMENT REQUIRED

0036CB042000	BLANKET WORK ORDER - NEW SERVICE	BLANKET WORK ORDER - NEW SERVICE COMMERCIAL	\$1,985,305	N/A	NEW BUSINESS	NEW BUSINESS
0032CB025120	BLANKET WORK ORDER - COYL	BLANKET WORK ORDER - COYL	\$1,919,545	N/A	REPLACEMENT	REPLACEMENT REQUIRED
0042W3481551	FRE 2019 VSP PRPE 21 UA SYS ST	INSTALL 9095'-6" PE & 2739'-2" PE MAIN, RETIRE 5200'-FT MAIN (630'-4"STL, 4203'-2"STL, 1055'-2"P	\$1,901,433	\$	2,653,847	REPLACEMENT
0036W3859813	DIMP: ATLAS 0057, 8TH AVE & 32	PEM8000 REPLACEMENT	\$1,893,434	\$	1,952,712	REPLACEMENT
0036W3634553	FTIR: ATLAS 1340, PICTURE ROCK	PEM8000 REPLACEMENT- FTIR	\$1,873,270	\$	195,414	REPLACEMENT
0036W3674364	FN HP: LA CHOLLA BLVD OVERTON	FRANCHISE HIGH PRESSURE REPLACEMENT LA CHOLLA BLVD OVERTON TO TANGERINE RD PHASE 2	\$1,864,999	\$	2,211,463	FRANCHISE
0033CB025120	BLANKET WORK ORDER - COYL	BLANKET WORK ORDER - COYL	\$1,864,067	N/A	REPLACEMENT	REPLACEMENT REQUIRED
0036W3389293	PEM8000 REPL (2017) - ATLAS 00	FTIR PEM8000 REPLACEMENT	\$1,863,197	\$	2,328,231	REPLACEMENT
0032W3647225	SI HP (2019): GILA BEND 2" HP	CUSTOMER DRIVEN SYSTEM IMPROVEMENT	\$1,857,608	\$	2,597,130	NEW BUSINESS
0032CB025100	BLANKET WORK ORDER - COYL SERVICE	BLANKET WORK ORDER - CUSTOMER OWNED YARD LINE (COYL) SERVICE REPLACEMENT	\$1,851,824	N/A	REPLACEMENT	REPLACEMENT REQUIRED
0036W3902608	PR: CORONA DE TUCSON, HOUGHTON	HIGH PRESSURE REINFORCEMENT	\$1,846,288	\$	1,876,977	SYSTEM REINFORCEMENT
0048W3329719	FTIR (2018): 9404205546 36TH S	REPLACE 2" PE8000	\$1,842,924	\$	1,667,024	REPLACEMENT
0036W3634540	FTIR: ATLAS 1329, SHANE AVE &	PEM8000 REPLACEMENT- NCDP/FTIR	\$1,841,473	\$	2,049,209	REPLACEMENT
0032W3639050	SI (2018): MCKINLEY AVENUE AJO	VINTAGE STEEL PIPE REPLACEMENT-AJO	\$1,836,335	\$	1,764,560	REPLACEMENT
0036W3492958	FTIR (2018) - ATLAS 0011, FAIR	PEM8000 REPLACEMENT- FTIR	\$1,836,280	\$	2,015,489	REPLACEMENT
0048W3474588	VSP (2019) - SOMERTON FEEDER T	REPLACE EXISTING 3" VINTAGE STEEL FEEDER MAIN.	\$1,814,534	\$	1,735,483	REPLACEMENT
0047W3625011	VSP (2019): SIERRA VISTA WEST	SIERRA VISTA 4 INCH VINTAGE STEEL PIPE REPLACEMENT	\$1,812,402	\$	1,742,030	REPLACEMENT
0036W3886176	FN ADOT SR77 N ORACLE RD DISTR	REPLACE EXISTING STEEL & PE MAIN & SERVICES DUE TO CONFLICTS W/ ROADWAY IMPROVEMENTS, DRAINAGES,	\$1,756,535	\$	2,152,424	FRANCHISE
0042W3482323	DISTRIBUTION PROJECT EAST - 2018 DP	REPLACE 6" 1947 STEEL MAIN	\$1,743,841	\$	1,790,689	REPLACEMENT
0042W3347052	FRE 2019 VSP TEMPE "H" SYSTEM	REPLACE MILL AVE BRIDGE CROSSING	\$1,736,193	\$	1,548,590	REPLACEMENT
0042W3690540	DISTRIBUTION PROJECT WEST 2019.40	INSTALL 6" PE8100 MAIN TO REINFORCE 40 PSIG WICKENBURG SYSTEM	\$1,679,672	\$	1,937,813	REPLACEMENT
0048W3329721	FTIR (2018): 38TH ST & CASSIDY	REPLACE 2" PE8000	\$1,652,573	\$	1,333,600	REPLACEMENT
0033CB026000	BLANKET WORK ORDER - NCDP PE SER	BLANKET WORK ORDER - SERVICE REPLACEMENT DUE TO SUSPECTED PE PIPE DEGRADATION	\$1,612,358	N/A	REPLACEMENT	REPLACEMENT REQUIRED
0042W3669587	DISTRIBUTION PROJECT WEST 2019 DIM	REPLACE MAIN AND SERVICES IDENTIFIED ON RISK ASSESSMENTS IN 2018.	\$1,581,497	\$	1,393,941	REPLACEMENT
0036W3634551	FTIR (2019) - ATLAS 1329, SUND	PEM8000 REPLACEMENT- NCDP/FTIR	\$1,574,155	\$	1,683,022	REPLACEMENT
0036W3812525	SI: DOVE MOUNTAIN 6" HP INSTAL	INSTALL 6" HP MAIN AS SYSTEM REINFORCEMENT FOR DOVE MOUNTAIN	\$1,547,100	\$	1,772,676	SYSTEM REINFORCEMENT
0042W3475359	HPTW FP341 VSP T SYS REPL PH 4	VSP - REPLACE VINTAGE STEEL DISTRIBUTION MAIN ALONG 27TH AVE.	\$1,545,663	\$	2,461,661	REPLACEMENT
0036W3634587	VSP (2019): ATLAS 305 & 306, R	VINTAGE STEEL REPLACEMENT PROJECT	\$1,529,808	\$	1,615,548	REPLACEMENT
0036W3743184	DIMP (2019) - ATLAS 59, PLUMER	PE8000 REPLACEMENT	\$1,527,354	\$	1,875,626	REPLACEMENT
0046CB025120	BLANKET WORK ORDER - COYL	BLANKET WORK ORDER - COYL	\$1,522,302			
0032W3547117	DPI (2018): 1ST ST AND 9TH STR	DPI STEEL MAIN REPLACEMENT	\$1,501,853	\$	1,547,112	REPLACEMENT
0042W3755728	DISTRIBUTION PROJECT EAST - 2020 D11	REPLACE ALL EXISTING M8000, PVC, & STEEL MAIN AND ASSOCIATED SERVICES IN GRID13-29 WITH NEW PE8	\$5,802,497	\$	5,681,024	REPLACEMENT
0042W4100994	DISTRIBUTION PROJECT WEST - NCDP N	REPLACE MAIN AND SERVICE	\$1,777,118	\$	1,584,140	REPLACEMENT
0042W3537421	DISTRIBUTION PROJECT WEST - NCDP N	REPLACE 18000' OF M8000 MAIN AND 21000 OF M8000 SERVICE WITH PE8100 PIPE	\$2,040,050	\$	2,192,861	REPLACEMENT
0036W3890043	FN: GRANT RD DISTRIBUTION RELO	RELOCATE EXISTING MAIN & SERVICES THROUGHOUT THE PROJECT DUE TO COT ROADWAY IMPROVEMENTS	\$1,563,481	\$	1,813,918	REPLACEMENT
0036W4173497	FN: SOUTH HOUGHTON ROAD 4" H.P	REPLACE 4" H.P. W/ 8" H.P. MAIN DUE TO CONFLICTS W/ DRAINAGE CROSSINGS FOR PIMA COUNTY'S ROADWA	\$2,080,493	\$	1,543,439	REPLACEMENT
0042W3966415	FRE PHX - DROUGHT PIPELINE PRO	RELOCATE APPROXIMATELY 1-MILE OF 8-INCH FEEDER DISTRIBUTION TO ACCOMMODATE CONSTRUCTION OF NEW 6	\$4,480,891	\$	3,957,369	REPLACEMENT
0036W3428151	FTIR (2020) ATLAS 0040 CHERRY	PEM8000 REPLACEMENT- NCDP	\$2,043,719	\$	2,140,875	REPLACEMENT
0048W3794699	FTIR (2021) - 9503287783 51ST	REPLACE APPROX. 17,490 FT OF PE8000 AND 14,442 FT ASSOCIATED SERVICES	\$2,414,081	\$	2,668,631	REPLACEMENT
0036W4054620	FTIR (2021) ATLAS 0006, KLEIND	PEM8000 REPLACEMENT- FTIR	\$2,684,389	\$	2,385,034	REPLACEMENT
0042W3868621	HPTE- FP348 - UNIVERSITY DR:47	REPLACING TRANSMISSION DUE TO PENDING AER	\$2,337,093	\$	3,556,256	REPLACEMENT
0042W3856966	HPTW-FP204 W/C SYSTEM REPLACE	2021 W/C REINFORCEMENT	\$5,323,479	\$	6,026,313	REPLACEMENT
0042W3576890	HPTW-FP331 TRANSMISSION REPLAC	VSP - REPLACE 1.5 MILES OF 10" STEEL MAIN WITH NEW 12" STEEL PIPE.	\$4,686,999	\$	3,675,670	REPLACEMENT

0036W3919559	SI (2021) HOUGHTON ROAD: IRVIN	HOUGHTON FEEDER REPL	\$5,974,258	\$	5,608,596	REPLACEMENT	REPLACEMENT REQUIRED
0032W4027475	SI HP (2020) - OLD HWY 80 4" FEEDER	4" HP FEEDER REPLACEMENT WITH 8" HP FEEDER	\$1,215,051	\$	1,618,513	REPLACEMENT	REPLACEMENT REQUIRED
0034W3877342	SI-TIERRA VERDE REMAINING REPL	REPLACE ALL MAIN AND SERVICE NCDP IN REMAINING TIERRA VERDE	\$1,325,499	\$	1,847,685	REPLACEMENT	REPLACEMENT REQUIRED
0046W4082956	STL (2020) - GROVER CANYON TO RAGU	STEEL REPLACEMENT SYSTEM IMPROVEMENT	\$91,801	\$	6,389,012	REPLACEMENT	REPLACEMENT REQUIRED
0036W3917400	STL UOC (2021): ATLAS 344, SKY	STEEL REPLACEMENT PROJECT - UOC	\$1,448,722	\$	2,544,167	REPLACEMENT	REPLACEMENT REQUIRED
0034W3905658	SI-PALO VERDE MEADOWS REPLACEME	PALO VERDE MEADOWS	\$1,422,466	\$	2,248,998	REPLACEMENT	REPLACEMENT REQUIRED

Exhibit JB-4

**SOUTHWEST GAS CORPORATION
DOCKET NO. G-01551A-21-0368
ARIZONA GENERAL RATE CASE 2021**

**ACC
Southwestern Energy Efficiency Project (SWEEP)
SWEEP-02
(SWEEP-02-009 THROUGH SWEEP-02-010)**

DOCKET NO: G-01551A-21-0368
COMMISSION: Arizona Corporation Commission
DATE OF REQUEST: 6/2/2022

REQUEST NO: SWEEP-02-009

Please provide the Company's current capital spending plan and a description of how the Company identifies and prioritizes capital projects.

RESPONDENT: Regulation

RESPONSE: *****CONFIDENTIAL ATTACHMENT*****

Please refer to SWEEP-02-009_Confidential Attachment 1 for the Board approved three-year plan, covering 2022-2024.

Regarding the identification and prioritization of the capital projects, senior management provided capital expenditure targets to each respective division. Division management planned their capital spend based on local needs (such as integrity driven pipe replacement, system reinforcement, and new business). The three-year plan is ultimately presented, and approved, by the Board.

Southwest Gas considers the information in the above-referenced attachment to be confidential and is producing it pursuant to the protective agreements executed by the parties.

Exhibit JB-5

Division	District Number	District Name	Replacement Year	Original Install WR	Size	Install Year	Pipe Type
CAZ	42	Phoenix	2022	9508326979	2"	1996	M8000
CAZ	42	Phoenix	2022	9501272404	2"	1995	M8000
CAZ	42	Phoenix	2022	9205517344	2"	1993	M8000
SAZ	36	Tucson	2022	2306A	2"	1989	M8000
SAZ	36	Tucson	2022	WA36128872	2"	1989	M8000
SAZ	36	Tucson	2022	2576A	2"	1987	M8000
SNV	34	Bullhead City	2022	AS8640	2"	1993	M8000
CAZ	42	Phoenix	2022	9309655889	2"	1994	M8000
CAZ	42	Phoenix	2022	71-1271	2"	1972	STD PVC
CAZ	42	Phoenix	2022	P50-0984	1/2"	1992	Plexco HD
CAZ	42	Phoenix	2022	71-1496	1-1/4"	1972	STD PVC
CAZ	42	Phoenix	2022	-	3/4"	1952	Steel
CAZ	42	Phoenix	2022	71-1607	2"	1972	STD PVC
CAZ	42	Phoenix	2022	71-2178	1-1/4"	1973	STD PVC
CAZ	42	Phoenix	2022	PE-3906	3/4"	1958	Steel
SNV	34	Bullhead City	2022	9009323860	1/2"	1994	M8000
CAZ	42	Phoenix	2023	9204514158	2"	1993	M8000
CAZ	42	Phoenix	2023	9708521458	2"	1997	M8000
SAZ	32	Valley District	2023	9209535463	2"	1992	M8000
SAZ	36	Tucson	2023	0875A	2"	1982	M8000
SAZ	48	Yuma	2023	9309652569	2"	1993	M8000
SAZ	48	Yuma	2023	9308646142	2"	1993	M8000
SAZ	48	Yuma	2023	9306636850	2"	1993	M8000
SAZ	48	Yuma	2023	9207527535	2"	1993	M8000
SAZ	48	Yuma	2023	9503287783	2"	1996	M8000
SAZ	48	Yuma	2023	9805596119	2"	1998	M8000
SNV	34	Bullhead City	2023	9401682311	2"	1995	M8000
SNV	34	Bullhead City	2023	AS4371	2"	1990	M8000
CAZ	42	Phoenix	2023	9303610388	2"	1993	M8000
SNV	34	Bullhead City	2023	AS4131	2"	1983	M8000
SAZ	36	Tucson	2023	9308649412	2"	1994	M8000
CAZ	42	Phoenix	2024	9801566262	2"	1998	M8000
CAZ	42	Phoenix	2024	9212550881	2"	1993	M8000
CAZ	42	Phoenix	2024	P80-3542	2"	1988	M8000
CAZ	42	Phoenix	2024	P80-3353	2"	1989	M8000
CAZ	42	Phoenix	2024	9209536087	2"	1993	M8000
CAZ	42	Phoenix	2024	2" Service	2"	1990	M8000
CAZ	42	Phoenix	2024	9304620181	2"	1993	M8000
CAZ	42	Phoenix	2024	P80-1659	1-1/4"	1990	M8000
CAZ	42	Phoenix	2024	P80-3315	1-1/4"	1990	M8000
CAZ	42	Phoenix	2024	P80-3749	2"	1989	M8000
SAZ	32	Valley District	2024	9306629465	2"	1993	M8000
SAZ	36	Tucson	2024	9209534464	1-1/4"	1993	M8000
SAZ	36	Tucson	2024	1548A	2"	1984	M8000
SAZ	36	Tucson	2024	2" Service	2"	1995	M8000
SAZ	48	Yuma	2024	9312673184	2"	1994	M8000
SAZ	48	Yuma	2024	9501273263	2"	1995	M8000
SAZ	48	Yuma	2024	9302608398	2"	1993	M8000
SNV	34	Bullhead City	2024	9903678251	2"	1999	M8000
SNV	34	Bullhead City	2024	9001300260	2"	1990	M8000
SNV	34	Bullhead City	2024	9701459729	2"	1997	M8000
SNV	34	Bullhead City	2024	8908200676	2"	1989	M8000
CAZ	42	Phoenix	2025	P80-3355	1-1/4"	1989	M8000
CAZ	42	Phoenix	2025	P80-3540	1-1/4"	1989	M8000
CAZ	42	Phoenix	2025	0496-M402	2"	1989	M8000
CAZ	42	Phoenix	2025	1515-M400	2"	1989	M8000
CAZ	42	Phoenix	2025	P80-3355	2"	1989	M8000
CAZ	42	Phoenix	2025	P80-3540	2"	1989	M8000
CAZ	42	Phoenix	2025	P80-3550	1-1/4"	1989	M8000
CAZ	42	Phoenix	2025	P80-3548	2"	1983	M8000
CAZ	42	Phoenix	2025	P80-3550	2"	1989	M8000
CAZ	42	Phoenix	2025	P80-3548	1-1/4"	1983	M8000
CAZ	42	Phoenix	2025	9002305288	2"	1990	M8000
CAZ	42	Phoenix	2025	9206523032	2"	1992	M8000
CAZ	42	Phoenix	2025	2" Service	2"	2004	M8000
CAZ	42	Phoenix	2025	9211544147	2"	1993	M8000
CAZ	42	Phoenix	2025	P80-3615	2"	1989	M8000
SAZ	36	Tucson	2025	3113A	2"	1984	M8000
SAZ	36	Tucson	2025	9203508506	2"	1993	M8000
SAZ	36	Tucson	2025	1640A	2"	1989	M8000
SAZ	36	Tucson	2025	9408235469	2"	1997	M8000
SAZ	36	Tucson	2025	2660A	2"	1989	M8000
SAZ	48	Yuma	2025	9210541461	2"	1992	M8000

SAZ	48	Yuma	2025	9310660128	2"	1994	M8000
SAZ	48	Yuma	2025	9308646540	2"	1993	M8000
SNV	34	Bullhead City	2025	PE 424	2"	1978	M7000
SNV	34	Bullhead City	2025	AS4107	2"	1989	M8000
SNV	34	Bullhead City	2025	9401679975	2"	1994	M8000
SNV	34	Bullhead City	2025	PE570 (see comment)	2"	1995	M8000
CAZ	42	Phoenix	2026	P80-3828	2"	1990	M8000
CAZ	42	Phoenix	2026	9005311504	2"	1990	M8000
CAZ	42	Phoenix	2026	1395050	1-1/4"	1988	M8000
CAZ	42	Phoenix	2026	P80-2208	1-1/4"	1987	M8000
CAZ	42	Phoenix	2026	9208529210	2"	1992	M8000
CAZ	42	Phoenix	2026	P80-3621	1-1/4"	1990	M8000
CAZ	42	Phoenix	2026	P80-3660	2"	1989	M8000
CAZ	42	Phoenix	2026	P80-3802	2"	1989	M8000
CAZ	42	Phoenix	2026	2" Service	2"	1999	M8000
CAZ	42	Phoenix	2026	P80-2638	1-1/4"	1990	M8000
CAZ	42	Phoenix	2026	9403696389	2"	1995	M8000
CAZ	42	Phoenix	2026	P80-3663	2"	1989	M8000
CAZ	42	Phoenix	2026	9202504677	2"	1993	M8000
CAZ	42	Phoenix	2026	P80-3208	1-1/4"	1989	M8000
CAZ	42	Phoenix	2026	P80-3106	1-1/4"	1987	M8000
CAZ	42	Phoenix	2026	P80-2235	1-1/4"	1988	M8000
CAZ	42	Phoenix	2026	P80-2755	1-1/4"	1988	M8000
CAZ	42	Phoenix	2026	W1051-83	1-1/4"	1987	M8000
CAZ	42	Phoenix	2026	2" Service	2"	1989	M8000
CAZ	42	Phoenix	2026	P80-2555	2"	1988	M8000
CAZ	42	Phoenix	2026	9211543471	1-1/4"	1993	M8000
CAZ	42	Phoenix	2026	P80-3765	2"	1990	M8000
CAZ	42	Phoenix	2026	1921-M400	2"	1989	M8000
CAZ	42	Phoenix	2026	P80-3326	2"	1989	M8000
CAZ	42	Phoenix	2026	P80-3513	2"	1989	M8000
CAZ	42	Phoenix	2026	9403694450	2"	1994	M8000
CAZ	42	Phoenix	2026	P80-2903	1-1/4"	1987	M8000
SAZ	32	Valley District	2026	9209535953	2"	1992	M8000
SAZ	36	Tucson	2026	9105415806	2"	1993	M8000
SAZ	36	Tucson	2026	9105415806	2"	1993	M8000
SAZ	36	Tucson	2026	9206519413	2"	1993	M8000
SAZ	36	Tucson	2026	9810636878	2"	1999	M8000
SAZ	36	Tucson	2026	1694A	2"	1989	M8000
SAZ	36	Tucson	2026	WA36132972	2"	1989	M8000
SAZ	36	Tucson	2026	WA36155676	2"	1989	M8000
SAZ	36	Tucson	2026	9703479375	2"	1997	M8000
SAZ	36	Tucson	2026	2326A	2"	1989	M8000
SAZ	36	Tucson	2026	9303613424	2"	1993	M8000
SAZ	36	Tucson	2026	3178A	2"	1989	M8000
SAZ	36	Tucson	2026	WA36160076	1-1/4"	1989	M8000
SAZ	36	Tucson	2026	WOC 0700042	2"	1991	M8000
SAZ	36	Tucson	2026	9003305686	2"	1990	M8000
SAZ	36	Tucson	2026	9303609355	2"	1995	M8000
SAZ	36	Tucson	2026	9303611146	2"	1993	M8000
SAZ	48	Yuma	2026	9506313159	2"	1996	M8000
SAZ	48	Yuma	2026	9005312696	2"	1990	M8000
SAZ	48	Yuma	2026	9510336754	2"	1996	M8000
SAZ	48	Yuma	2026	9809627422	2"	1999	M8000
SAZ	48	Yuma	2026	9304621557	2"	1993	M8000
SAZ	48	Yuma	2026	9003307659	2"	1990	M8000
SAZ	48	Yuma	2026	9307643280	2"	1993	M8000
SAZ	48	Yuma	2026	9608424400	2"	1996	M8000
SAZ	48	Yuma	2026	9404205546	2"	1994	M8000
SAZ	48	Yuma	2026	9204512728	1-1/4"	1992	M8000
SNV	34	Bullhead City	2026	PE 508	2"	1980	M7000
SNV	34	Bullhead City	2026	1141-M210	2"	1989	M8000
SNV	34	Bullhead City	2026	9402690939	2"	1994	M8000
SNV	34	Bullhead City	2026	8911202935	2"	1990	M8000
SNV	34	Bullhead City	2026	1842-M210	2"	1989	M8000
SNV	34	Bullhead City	2026	9610443250	2"	1997	M8000
SNV	49	Wickenburg	2026	9303614090	2"	1994	M8000
SNV	49	Wickenburg	2026	9409247080	2"	1995	M8000
SNV	34	Bullhead City	2026	9109430504	2"	1991	M8000
SNV	49	Wickenburg	2026	9209536364	2"	1993	M8000
SNV	34	Bullhead City	2026	0277-M212	2"	1987	M8000
SAZ	48	Yuma	2026	9506312517	2"	1996	M8000
CAZ	42	Phoenix	2026	1563-M408	2"	1989	M8000
SNV	34	Bullhead City	2026	9207524374	2"	1992	M8000
CAZ	42	Phoenix	2026	9212547558	2"	1994	M8000

CAZ	42	Phoenix	2027	9208529512	2"	1992	M8000
CAZ	42	Phoenix	2027	9807609964	2"	1998	M8000
CAZ	42	Phoenix	2027	2" Service	2"	1993	M8000
CAZ	42	Phoenix	2027	9304619066	2"	1993	M8000
CAZ	42	Phoenix	2027	9604394660	2"	1996	M8000
CAZ	42	Phoenix	2027	P80-2876	1-1/4"	1988	M8000
CAZ	42	Phoenix	2027	9002303397	1-1/4"	1990	M8000
CAZ	42	Phoenix	2027	P80-3069	1-1/4"	1988	M8000
CAZ	42	Phoenix	2027	1193-M401	2"	1989	M8000
SAZ	32	Valley District	2027	9304618033	2"	1993	M8000
SAZ	32	Valley District	2027	9209535931	2"	1992	M8000
SAZ	32	Valley District	2027	9311670852	2"	1995	M8000
SAZ	36	Tucson	2027	WA36132172	2"	1989	M8000
SAZ	36	Tucson	2027	9712554757	2"	1999	M8000
SAZ	48	Yuma	2027	9502278571	2"	1995	M8000
SAZ	48	Yuma	2027	9412267362	2"	1994	M8000
SAZ	48	Yuma	2027	9202504520	2"	1993	M8000
SAZ	48	Yuma	2027	9505306011	2"	1995	M8000
SAZ	36	Tucson	2027	9502275642	2"	1994	M8000
CAZ	42	Phoenix	2028	P80-3819	1-1/4"	1990	M8000
CAZ	42	Phoenix	2028	P80-3546	1-1/4"	1989	M8000
CAZ	42	Phoenix	2028	P80-1657	1-1/4"	1990	M8000
CAZ	42	Phoenix	2028	9610439572	4"	1997	M8000
CAZ	42	Phoenix	2028	P80-3649	2"	1989	M8000
CAZ	42	Phoenix	2028	P80-1610	1-1/4"	1987	M8000
SAZ	36	Tucson	2028	9002303605	2"	1990	M8000
SAZ	36	Tucson	2028	Unknown	2"	1989	M8000
SAZ	36	Tucson	2028	9605397802	2"	1996	M8000
SAZ	36	Tucson	2028	WA36124272	2"	1989	M8000
SAZ	48	Yuma	2028	9212547916	2"	1993	M8000
SAZ	48	Yuma	2028	9503287783	4"	1996	M8000
SAZ	48	Yuma	2028	9807612192	2"	1998	M8000
SAZ	48	Yuma	2028	9810636498	2"	1999	M8000
SAZ	48	Yuma	2028	9306636864	2"	1995	M8000
CAZ	42	Phoenix	2029	P80-2472	1-1/4"	1988	M8000
CAZ	42	Phoenix	2029	P80-2593	2"	1988	M8000
CAZ	42	Phoenix	2029	9503284223	2"	1995	M8000
CAZ	42	Phoenix	2029	1983-M457	2"	1989	M8000
CAZ	42	Phoenix	2029	9503288026	2"	1996	M8000
CAZ	42	Phoenix	2029	P80-3282	1-1/4"	1988	M8000
CAZ	42	Phoenix	2029	P80-2918	2"	1988	M8000
CAZ	42	Phoenix	2029	9506310591	2"	1996	M8000
CAZ	42	Phoenix	2029	9409245507	2"	1995	M8000
CAZ	42	Phoenix	2029	P80-3524	2"	1989	M8000
SAZ	36	Tucson	2029	9210538348	2"	1992	M8000
SAZ	36	Tucson	2029	WOC0700074	2"	1990	M8000
SAZ	36	Tucson	2029	WA36127976	2"	1989	M8000
SAZ	36	Tucson	2029	2" Service	2"	1993	M8000
SAZ	48	Yuma	2029	9409244501	2"	1995	M8000
SAZ	48	Yuma	2029	9306634552	2"	1994	M8000
SAZ	48	Yuma	2029	9410249392	2"	1994	M8000
SAZ	48	Yuma	2029	9711552256	2"	1998	M8000
SNV	34	Bullhead City	2029	9308648518	2"	1993	M8000
CAZ	42	Phoenix	2029	9310660641	2"	1994	M8000
CAZ	42	Phoenix	2029	9708519686	2"	1999	M8000
SAZ	48	Yuma	2029	9311670851	2"	1994	M8000
SAZ	36	Tucson	2029	9708516837	2"	1997	M8000
SAZ	48	Yuma	2029	9406222188	2"	1994	M8000
CAZ	42	Phoenix	2029	9707505752	2"	1998	M8000
SNV	34	Bullhead City	2029	9608424172	2"	1997	M8000
CAZ	42	Phoenix	2030	P80-2263	1-1/4"	1980	M8000
CAZ	42	Phoenix	2030	P80-3573	1-1/4"	1990	M8000
CAZ	42	Phoenix	2030	9606411192	1-1/4"	1989	M8000
CAZ	42	Phoenix	2030	P80-3635	2"	1989	M8000
CAZ	42	Phoenix	2030	P80-3226	2"	1998	M8000
CAZ	42	Phoenix	2030	P80-3645	1-1/4"	1989	M8000
SAZ	32	Valley District	2030	9502276377	2"	1995	M8000
SAZ	36	Tucson	2030	0127A	2"	1989	M8000
SAZ	36	Tucson	2030	9312674360	2"	1994	M8000
SAZ	36	Tucson	2030	9803579763	2"	1998	M8000
SAZ	48	Yuma	2030	9710541199	2"	1998	M8000
SAZ	48	Yuma	2030	9303612885	2"	1993	M8000
SAZ	48	Yuma	2030	9601359033	2"	1996	M8000
SAZ	48	Yuma	2030	9805597532	2"	1999	M8000
SAZ	48	Yuma	2030	2" Service	2"	1994	M8000

SAZ	48	Yuma	2030	9706503913	2"	1997	M8000
SAZ	48	Yuma	2030	9405207995	2"	1994	M8000
SAZ	48	Yuma	2030	9808621663	2"	1998	M8000
SNV	34	Bullhead City	2030	AS4326	2"	1991	M8000
SNV	49	Wickenburg	2030	9409247090	2"	1994	M8000
CAZ	42	Phoenix	2030	1611-M406	2"	1989	M8000
SAZ	48	Yuma	2030	9606405340	2"	1997	M8000
SAZ	48	Yuma	2030	9605396925	2"	1996	M8000
SNV	34	Bullhead City	2030	AS4281	2"	1992	M8000
CAZ	42	Phoenix	2030	P80-3011	1-1/4"	1988	M8000
CAZ	42	Phoenix	2030	2144-M457	2"	1989	M8000
CAZ	42	Phoenix	2030	9303613676	2"	1993	M8000
CAZ	42	Phoenix	2031	1054-M404	2"	1989	M8000
CAZ	42	Phoenix	2031	2031M402CM	1-1/4"	1990	M8000
SAZ	48	Yuma	2031	9211545122	2"	1993	M8000
CAZ	42	Phoenix	2031	1007-76	2"	1988	M8000
CAZ	42	Phoenix	2031	9409241366	2"	1995	M8000
CAZ	42	Phoenix	2031	9401683824	2"	1994	M8000
CAZ	42	Phoenix	2031	9004309018	2"	1990	M8000
SAZ	48	Yuma	2031	9812653808	2"	1999	M8000
SAZ	36	Tucson	2031	2328A	2"	1989	M8000
SAZ	48	Yuma	2031	SAD1907C8	2"	1999	M8000
SAZ	36	Tucson	2031	9307643486	2"	1994	M8000
SAZ	48	Yuma	2031	9305627238	2"	1993	M8000
CAZ	42	Phoenix	2031	P80-3776	2"	1990	M8000
SNV	34	Bullhead City	2031	9701459733	2"	1997	M8000
CAZ	42	Phoenix	2031	P80-3776	1-1/4"	1990	M8000
SNV	34	Bullhead City	2031	9405207645	2"	1994	M8000
SNV	34	Bullhead City	2032	PEB560	2"	1983	M8000
CAZ	42	Phoenix	2032	9204511830	2"	1993	M8000
CAZ	42	Phoenix	2032	9702467962	2"	1997	M8000
CAZ	42	Phoenix	2032	P80-2757	1-1/4"	1988	M8000
SAZ	36	Tucson	2032	9203510622	2"	1992	M8000
SAZ	36	Tucson	2032	9605397836	2"	1996	M8000
SAZ	36	Tucson	2032	9204513866	2"	1992	M8000
SNV	34	Bullhead City	2032	9901664624	2"	1999	M8000
CAZ	42	Phoenix	2032	9310661947	2"	1994	M8000
CAZ	42	Phoenix	2032	2" Service	2"	1998	M8000
CAZ	42	Phoenix	2032	9301603268	2"	1993	M8000
CAZ	42	Phoenix	2032	P80-3798	2"	1989	M8000

Exhibit JB-6

**SOUTHWEST GAS CORPORATION
DOCKET NO. G-01551A-21-0368
ARIZONA GENERAL RATE CASE 2021**

**ACC
Southwestern Energy Efficiency Project (SWEEP)
SWEEP-03
(SWEEP-03-004 THROUGH SWEEP-03-005)**

DOCKET NO: G-01551A-21-0368
COMMISSION: Arizona Corporation Commission
DATE OF REQUEST: 7/6/2022

REQUEST NO: SWEEP-03-004

Refer to the Company's Response to SWEEP -2-10.

- a. Please provide the total value of construction allowances broken down by customer class for calendar years 2019, 2020, and 2021
- b. Please provide the average construction allowance for each new customer connected to the natural gas system broken down by customer class for calendar years 2019, 2020, and 2021
- c. Confirm that the Company conducts an Incremental Contribution Study based on each customer's proposed natural gas appliances to determine the allowable investment for each application it receives for either a gas service or main line extension. If not, please explain when the Company uses average usage to determine incremental contribution
- d. Define Permanent Customer as it appears in Section B 4.b of Rule No. 6 of the Company's Arizona tariff.
- e. Provide the Company's standard contract for new residential customers requesting a gas service or main line extension.
- f. Provide the number of years the Company assumes a customer will maintain their original gas fired appliances when calculating revenues in the Incremental Contribution Study.
- g. Does the Company do any quantification after the fact to determine that projected revenues at the time of application are consistent with actual revenues for projects less than the allowable investment? If yes, would the customers be required to pay additional funds or a Facility Charge to make up the difference?

- h. Provide the assumptions used by SW Gas to determine residential gas usage (e.g., usage or capacity factors) for each type of residential appliance used to determine the Allowable Investment.
- i. Please provide the total dollar value of any Facility Charges levied against customers in 2019, 2020, and 2021 and provide the calculation of the value of each Facility Charge.

RESPONDENT: Energy Solutions

RESPONSE:

- a. Please refer to table below:

Construction Allowances					
Customer Class	2019		2020		2021
Commercial	\$	2,877,958	\$	3,034,247	\$ 3,322,576
Residential	\$	24,789,374	\$	17,638,192	\$ 21,568,309

- b. Please refer to the table below:.

Average Construction Allowance					
Customer Class	2019		2020		2021
Commercial	\$	999	\$	912	\$ 1,770
Residential	\$	1,017	\$	1,149	\$ 1,092

- c. Yes, the Company prepares an incremental contribution method (ICM) analysis for each application requesting gas service.
- d. Permanent Customer is defined on Sheet No. 114 of the Company's Arizona Gas Tariff as: "A customer who is a tenant or owner of a service location who applies for and receives natural gas service in a status other than transient, temporary or agent."
- e. Please refer to SWEEP-03-004_Attachment 1 and SWEEP-03-004_Attachment 2.
- f. 10 years.
- g. The quantification is done at the time of the initial ICM analysis; any projects that will generate revenues less than the allowable investment are collected as a contribution in aid of construction otherwise known as a non-refundable Facility Charge.

h. Please refer to the table below:

<u>Appliances</u>	<u>Annual Therms</u>
Space Heating – One system	128.6
Space Heating – Two systems	180.04
Space heating – Three systems	385.8
Water heating – one system	81
Water Heating – 2/3 systems	121
Tankless water heater	35
Range without gas oven	27.3
Range with gas cooktop and oven	37.3
Dryer Stub & 220v electric-cust option	10
Dryer Stub No 220v-gas dryer only	40

i. Please refer to the response to SWEEP 2-10, parts d and e. The calculation is performed in an ICM model in each case.

Exhibit JB-7

**SOUTHWEST GAS CORPORATION
DOCKET NO. G-01551A-21-0368
ARIZONA GENERAL RATE CASE 2021**

**ACC
ACC Staff
Staff-03
(Staff-03-008 THROUGH STAFF-03-025)**

DOCKET NO: G-01551A-21-0368
COMMISSION: Arizona Corporation Commission
DATE OF REQUEST: 3/22/2022

REQUEST NO: Staff-03-008

Please provide a detailed response to whether Southwest has seen any significant changes in how the COYL replacement program operated in 2020 in comparison to 2021.

RESPONDENT: Reg & Energy Efficiency

RESPONSE:

The most significant operational change in how the COYL replacement program operated in 2020 in comparison to 2021 was the reduced scope of the program. Decision No. 77850 authorized continuation of the COYL program but limited the scope to that authorized in Decision Nos. 72723 and 74304, greatly reducing the scope of the Program. The COYL program is only offered to customers: (1) when the COYL is found to be leaking and (2) when the Company is performing other pipe replacement activity in the area.

Additionally, Decision No. 77850 required the Company to appoint an Independent Monitor for the COYL program. The Independent Monitor review of the COYL Program concluded the following:

- An extensive review of proposed construction service providers was conducted to ensure company standards and expectations are met
 - Request for Proposals (RFP) are sent to previously approved gas pipeline construction contractors consistent with company standard practices
 - The Bidding process fosters competitive bidding
 - Equitable bidding opportunities are provided to preapproved gas pipeline construction contractors with transparent and unbiased processes
 - Unit price bid evaluations were conducted in a consistent manner throughout all districts
- Construction Agreements are executed to successful bidder(s)

Please refer to Staff-03-008_Attachment 1 for a copy of the February 2022 annual COYL surcharge filing and annual report for additional information on the COYL program in 2021, including the Independent Monitor Report.

Exhibit JB-8



SOUTHWEST GAS CORPORATION

February 28, 2022

Docket Control
Arizona Corporation Commission
1200 West Washington Street
Phoenix, AZ 85007-2996

**Re: Docket No.G-01551A-19-0055
In the Matter of the Application of Southwest Gas Corporation for the
Establishment of Just and Reasonable Rates and Charges Designed to
Realize a Reasonable Rate of Return on the Fair Value of the Properties of
Southwest Gas Corporation Devoted to Its Arizona Operations**

Southwest Gas Corporation ("Southwest Gas") respectfully submits its Application for Approval to Set Customer Owned Yard Line (COYL) Cost Recovery Mechanism Surcharge Rate.

If you have any questions, please contact me at 602-395-4058.

Respectfully submitted,

Matthew D. Derr
Director/Regulation & Energy Efficiency

BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

LEA MARQUEZ PETERSON – Chairwoman
SANDRA KENNEDY
JUSTIN OLSON
ANNA TOVAR
JIM O’CONNOR

In the Matter of the Application of Southwest Gas Corporation for the Establishment of Just and Reasonable Rates and Charges Designed to Realize a Reasonable Rate of Return on the Fair Value of the Properties of Southwest Gas Corporation Devoted to Its Arizona Operations

Docket No.: G-01551A-19-0055

APPLICATION FOR APPROVAL TO SET CUSTOMER-OWNED YARD LINE (COYL) COST RECOVERY MECHANISM SURCHARGE RATE

Introduction

1. Southwest Gas Corporation (Southwest Gas or Company) hereby submits its application to the Arizona Corporation Commission (Commission), respectfully requesting to update the previously approved surcharge rate related to its Customer-Owned Yard Line (COYL) Program to reflect 2021 COYL activity.
2. Southwest Gas is a corporation in good standing under the laws of the state of Arizona, is a corporation duly organized, validly existing, and is qualified to transact intrastate business.
3. Southwest Gas is a public utility subject to the jurisdiction of the Commission pursuant to Article XV of the Arizona Constitution and the applicable chapters of Title 40 of the Arizona Revised Statutes (A.R.S.). Southwest Gas currently serves more than 2 million customers Companywide, and over 1 million customers in the state of Arizona, including portions of Cochise, Gila, Graham, Greenlee, La Paz, Maricopa, Mohave, Pima, Pinal, and Yuma counties.

4. Southwest Gas' corporate offices are located at 8360 South Durango Drive, Las Vegas, Nevada 89113. For operational purposes, Southwest Gas' Central Arizona operations are headquartered in Phoenix and its Southern Arizona operations are headquartered in Tucson. Communications regarding this filing should be addressed to:

Catherine M. Mazzeo
Managing Counsel
Southwest Gas Corporation
P.O. Box 98510
Las Vegas, NV 89193-8510
Phone: 702-876-7250
Email: catherine.mazzeo@swgas.com
With a copy to: RegServe@swgas.com

Matthew Derr
Director/Regulation&Energy Efficiency
Southwest Gas Corporation
1600 Northern Avenue
Phoenix, AZ 85020
Phone: 620-395-4058
Email: matt.derr@swgas.com

Background

5. The Commission issued Decision No. 72723 in Southwest Gas' 2010 general rate case, which included approval of the Company's COYL Program consistent with the terms of a Settlement Agreement involving the Company and various other parties to the docket. In January 2014, the Commission issued Decision No. 74304, which modified Decision No. 72723 to create Phase II of the COYL program, which allowed the Company to replace COYLs, regardless of whether they were leaking, in conjunction with the Company's other pipe replacement activity. In April 2017, the Commission issued Decision No. 76069 in the Company's 2016 general rate case, which further expanded the program to allow the Company to proactively replace COYLs, regardless of whether they are leaking. In Decision No. 77850 in the Company's 2019 general rate case, the Commission authorized continuation of the COYL program with a limited scope (Phases I and II only) and adopted the unopposed recommendation of the Commission Utilities Division Staff (Staff) to select an Independent Monitor (IM) to review certain aspects of the program.

6. The Company files a report each February to provide various details on the program's performance.¹ The Company's annual report, covering the period January 1, 2021, through December 31, 2021, is attached hereto as **Exhibit 1**.

7. As detailed in the accompanying report, Southwest Gas continues to make successful progress toward the goal of removing all known COYLs from its natural gas system. In 2021, the Company discovered 1,044 leaking COYLs as part of Phase I, of which 880 COYLs were relocated. Phase II work in 2021 resulted in the Company contacting 616 customers, with a total of 305 COYL relocations either in progress or completed at year end.

8. Decision No. 72723 also authorized the establishment of the COYL Cost Recovery Mechanism (CCRM). The CCRM is the mechanism that allows Southwest Gas to recover the capital investment associated with the COYL Program. The CCRM is based upon actual costs and costs eligible for recovery (depreciation and pre-tax return). The CCRM surcharge is reset annually and contains a cap that prevents an increase in the surcharge amount greater than \$0.01 per therm in any single year.²

9. Based upon collaborations between the Company and Staff, Staff will, within 45 days, review the Company's filing and make its recommendations to the Commission.³

Independent Monitor Report

10. As referenced above, in Decision No. 77850, the Commission adopted Staff's unopposed recommendation to appoint an IM to review certain aspects of the COYL Program.

¹ Settlement Agreement in Docket No. 10-0458, at §5.18. Consistent with the compliance plan filed by the Company pursuant to Decision No. 77850, a COYL report covering the period from January 1, 2019 through December 31, 2020 was included in the Company's May 2021 application to recover certain outstanding COYL revenue requirement. That application was approved by the Commission in Decision No. 78315.

² Settlement Agreement in Docket No. 10-0458, at §§5.15-5.16. The CCRM also includes the cost of the Independent Monitor review discussed herein.

³ Id. at §5.18.

11. The Company, with Staff's approval, selected R.L. Townsend & Associates as the IM. The IM conducted a review of the program for the 2021 program year and produced the IM Report attached as **Exhibit 2** to this Application.

12. The IM Report includes the following findings and conclusions:

- An extensive review of proposed construction service providers is conducted to ensure company standards and expectations are met.
- Request for Proposals (RFP) are sent to previously approved gas pipeline construction contractors consistent with company standard practices.
- The Bidding process fosters competitive bidding.
- Equitable bidding opportunities are provided to pre-approved gas pipeline construction contractors with transparent and unbiased processes.
- Unit price bid evaluations were conducted in a consistent manner throughout all districts.
- Construction Agreements are executed to successful bidder(s).

Revised COYL Plan of Administration

13. Pursuant to the Settlement Agreement and Decision in the Company's 2016 general rate case, the Company prepared and filed a Plan of Administration (POA) for the COYL Program on June 9, 2017.

14. As a result of the Decision in the Company's 2019 general rate case, certain portions of the POA required modification. Consistent with the IM review, Southwest Gas made those modifications and will file the revised COYL POA, a copy of which is provided as **Exhibit 3** to this Application, in this docket.

Request to Reset CCRM Surcharge Rate

15. Southwest Gas hereby requests approval to reset its CCRM surcharge rate, to include the COYL-related capital investments made by the Company from January 1, 2021 through December 31, 2021. The CCRM surcharge calculation is included as **Exhibit 4** to this Application. Also included in **Exhibit 4** are the estimated average bill impacts for single family residential customers.

1 16. In Decision No. 78315, the Commission authorized a CCRM surcharge rate
2 of \$0.02008 to be collected over a 12-month period for the recovery of revenue requirement
3 associated with 2019 and 2020 COYL investments.

4 17. Through this application, Southwest Gas seeks to increase the currently
5 authorized CCRM surcharge to \$0.02512, effective from June 2022 to October 2022, to
6 incorporate the revenue requirement associated with 2021 COYL investments. When the
7 12-month collection period for the 2019 and 2020 COYL revenue requirement expires in
8 October 2022, the CCRM surcharge will decrease to \$0.00504.

9 **Conclusion**

10 18. Based upon the foregoing, Southwest Gas respectfully requests that the
11 Commission authorize the Company to reset the CCRM surcharge as set forth herein, with
12 an effective date of June 1, 2022.

13 Respectfully submitted this 28th day of February 2022.

14
15 SOUTHWEST GAS CORPORATION
16 
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21 (702) 876-7250
22 catherine.mazzeo@swgas.com

23
24 Attorney for Southwest Gas Corporation
25
26
27
28

E-filed this 28th day of February, 2022 with:

<https://efiling.azcc.gov>
Arizona Corporation Commission
1200 W. Washington St.
Phoenix, AZ 85007

Copies of the foregoing were hand-delivered/mailed or electronically mailed
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an employee of Southwest Gas Corporation

Exhibit 1

1. Introduction

Southwest Gas Corporation (Southwest Gas or Company) respectfully submits to the Arizona Corporation Commission (Commission) its annual Customer-Owned Yard Line (COYL) Program report for calendar year 2021.

The COYL Program was originally approved by the Commission in 2011 (Decision No. 72723), with the goal of replacing all known COYLs within the Company's Arizona service territories. The program allowed Southwest Gas to leak survey the COYLs in its Arizona service territories and provide customers the opportunity to have leaking COYLs replaced with facilities owned and maintained by Southwest Gas (Phase I). In 2014 (Decision No. 74304), the Commission approved expanding the COYL program to allow the Company to proactively replace COYLs in conjunction with other pipe replacement activities, regardless of whether the COYL is leaking (Phase II).

As part of the Company's 2016 general rate case (Decision No. 76069), the Commission adopted the Settlement Agreement that further expanded the COYL Program to allow a more targeted approach to COYL replacement.¹ In addition to replacing COYLs that are leaking and those that are not leaking but are in the same vicinity as other pipeline replacement activity, the Company was able to replace COYLs, regardless of whether they are leaking, even if there is no other pipeline replacement activity in the area (Phase III).

In Decision No. 77850, the Commission authorized Southwest Gas to continue the COYL Program, with a limited scope (Phase I and Phase II). Additionally, the Commission ordered the Company to work with Staff to appoint an Independent Monitor (IM) to oversee the COYL program cost effectiveness, help assure fair bidding for work between Southwest

¹Settlement Agreement in Docket No. 16-0107, §§ 7.1-7.2

Gas affiliates and non-affiliates and assist in the development of a Plan of Administration (POA).

Southwest Gas continues to make progress toward the goal of removing COYLs from the natural gas system. With respect to Phase I of the program, in 2021, the Company assessed 30,871 yard lines, conducted 10,788 COYL leak surveys and discovered 1,088 leaks. Of these, 1,044 were leaking COYLs and the remainder were leaking houselines. The Company relocated 880 COYLs, with 15 in progress at year end, and 33 declining relocation. For non-leaking COYLs, or Phase II, in 2021, 616 customers were contacted for the COYL program and the Company relocated 67, with 238 relocations in progress at year end and 75 customers declining.

2. Overview of the COYL Program

Background

Southwest Gas defines a COYL as the customer-owned exterior gas piping that connects at the meter and continues to where the gas piping enters the customer's premise. A diagram depicting a typical COYL installation is attached as Exhibit A. Because Southwest Gas is not required to inspect or maintain facilities beyond the point of delivery (at the meter), the responsibility for maintaining the COYL rests with the customer. Southwest Gas notifies new customers of this obligation through its new customer brochure and reminds all COYL customers to inspect and maintain their yard lines through monthly notices included with their bills.

Southwest Gas proposed the COYL program in its 2010 general rate case, after noticing an upward trend in odor calls related to COYLs. Prior to the COYL program, a customer's only three options for remedying a leaking COYL was to: 1) pay Southwest Gas to replace the COYL with Southwest Gas facilities and relocate the gas meter; 2) hire a licensed plumber to repair the leak or replace the COYL; or 3) discontinue natural gas service.

There are several benefits to replacing COYLs with utility-owned facilities, including, but not limited to, enhanced public safety, increased pipeline safety, reliability and integrity, and routine maintenance by a Commission-regulated utility. However, before the COYL Program was introduced, approximately 70 percent of customers with leaking COYLs hired a plumber to repair or replace the COYL, and only 15 percent elected to have Southwest Gas install its own facilities and relocate the gas meter. The COYL Program has dramatically improved upon these statistics, with more than 90 percent of customers with leaking COYLs electing to replace the COYL with Southwest Gas facilities.

Since the inception of the program, the Company has completed more than 29,656 meter relocations. As of December 31, 2021, there are approximately 65,199 active customers in Arizona with a COYL.

Communications with Customers

Southwest Gas continues to employ a comprehensive communications process to engage customers to participate in the COYL program and obtain their permission to conduct the COYL leak surveys. During 2021, the Company continued to enhance the program's outreach process for increased acceptance among customers by providing a new brochure to customers summarizing the COYL relocation process. Please refer to Exhibit B for examples of COYL collateral material.

Additionally, COYL messaging on communications continues to direct customers to the COYL Program webpage at www.swgas.com/coyl.

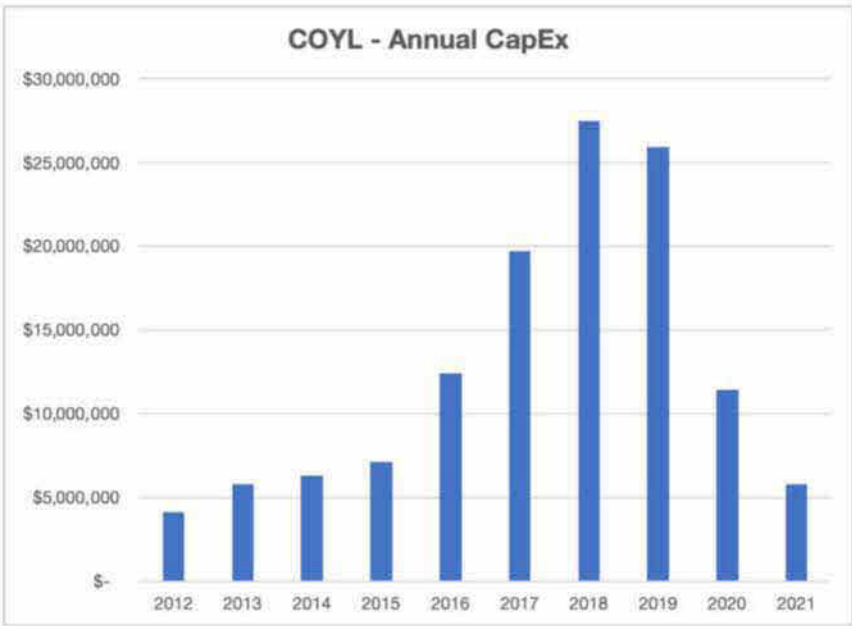
Cost Recovery

Unlike capital investments that generate new customers or increased load, Southwest Gas' COYL Program is dedicated to capital investments that are non-incremental revenue producing in nature. Therefore, the Company's ability to timely recover the cost of service related to its COYL capital investment is an essential component of the COYL Program.

Southwest Gas charges the capital investment associated with the COYL Program to a capital account and recovers the related revenue requirement through the COYL Cost Recovery Mechanism (CCRM).

3. 2021 COYL Program Results and Costs

COYL capital expenditures in 2021, were more in line with what the Company experienced between 2012-2015 (Phase I and Phase II), and consistent with the directives to reduce the scope of the program in Decision No. 77850. The reduced scope of the program is demonstrated below:



In 2021, the Company incurred approximately \$5.8 million in capital costs for the COYL Program. As discussed in the application, the Company's currently effective COYL surcharge rate of \$0.02008 per therm was authorized in Decision No. 78315 to collect the revenue requirement associated with COYL investments in 2019 and 2020 over a 12-month period. Southwest Gas is seeking to adjust the CCRM surcharge to \$0.02512 per therm, effective June 1, 2022, to incorporate the revenue requirement from the 2021 COYL

investments. Once the 12-month collection period for the 2019 and 2020 COYL revenue requirement expires in October 2022, the COYL surcharge rate will decrease to \$0.00504 per therm. The Company’s proposal is illustrated below:



Under the Company’s proposal, the COYL rate from June 1, 2022 to October 31, 2022 would be \$0.02512 per therm, or an incremental \$0.06 in the summer. Effective November 1, 2022, the rate would decrease to \$0.00504 per therm and customers would experience an incremental decrease of \$0.36 per month (based on an average monthly usage of 24 therms).

COYL Program activity for 2021 is summarized below:

COYL Program Activities 2012 - 2021			
		2012-2020	2021
A	Total Lines Inspected or Attempted to be Inspected	377,840	30,871
B	Lines Identified as Not Being Eligible Under the COYL Program	29,040	212
C	Lines Identified as COYLs	348,800	30,659
D	Number Passing the Survey	144,316	9,700
E	Number Identified as Leaks	15,792	1,088
F	Number Refusing to allow SWG to Survey	26,923	962
H	Verified Non COYL - Relocation Completed	7,052	1,081
I	Number Southwest was Unable to Contact	101,086	16,002
Leaking Relocation Activity			
H	Number of COYLS Replaced	15,048	880
I	Replacements in Progress at the Time of Southwest's Filing	286	15
J	Number Undecided as to Whether to Replace	655	51
K	Number Declining Replacement of Leaking COYL	755	33
Non Leaking Relocation Activity			
L	Number of COYLS Replaced	13,608	67
M	Replacements in Progress at the Time of Southwest's Filing	12,014	238
N	Number Declining Replacement of COYL	4,944	75
O	No Response to Relocation Offer	6,546	236

The average cost per COYL relocation by 2021 was \$5,761, a slight decrease of \$198 over the cost per COYL relocation experienced in 2020.

2022 COYL Program Outlook

With the reduced scope of the COYL Program, the Company will continue to offer leak surveys to customers to identify COYLs for relocation. Additionally, the Company will identify areas of pipe replacement and offer relocations to customers in the vicinity of those relocation activities. With the Company's recent purchase of Graham County Utilities' natural gas assets (Decision No. 78364), the Company has started to offer the COYL program to eligible customers in its new service territory in Graham County. The Company expects to relocate

approximately 200 COYLs in the new Graham service territory alone this year, or an investment of \$1.1 million to enhance the safety of the gas distribution system in the area. The Company expects the same number of COYL relocations in 2022. With respect to COYL costs, the Company expects that the average cost per COYL relocation might be slightly higher due to a new pipe replacement contract what will likely result in increased costs for pipeline relocation work, including COYL.

4. Independent Monitor

Decision No. 77850 required the Company work with Staff to appoint an IM to oversee the COYL program cost effectiveness, help assure fair bidding for work between SWG affiliates and non-affiliates and assist in the development of a Plan of Administration. The Company retained R. L. Townsend and Associates to perform the review required by Decision No. 77850 for the 2021 program year.

The objectives and scope for the IM were:

Bidding Process for COYL Work

- Certain COYL work in Arizona has been awarded to an affiliate of SWG. The IM is to review the bidding process for the 2021 COYL work to confirm a fair bidding process between SWG and its contractors. The IM should also assure confidentiality of bids between SWG and both its affiliates and non-affiliates. As part of this review, the IM will:
 - Review SWG's RFP to gas pipeline construction contractors that encompass the 2021 COYL program work in Arizona, to determine if they were conducted fairly and consistent with company policies and procedures
 - Determine if the bidding process for COYL work fostered a competitive bidding process
 - Determine if all bidders were provided equitable bidding opportunities for the Arizona COYL work, consistent with a transparent and unbiased process
 - Determine if the pertinent contracts were awarded based on applicable criteria, as indicated in the SWG policies and procedures in place at the time
 - Make recommendations, if warranted based on the review, regarding possible improvements to the Company's COYL bidding process

Cost Effectiveness

- The IM will review COYL program cost increases related to the COYL program work and evaluate the cause of those increases.

Plan of Administration (POA)

- The IM will review and confirm the COYL program is being implemented consistent with the POA, and provide input, as applicable, on the POA.

The IM report is included with the Company's application. In summary, the IM review concluded:

- An extensive review of proposed construction service providers was conducted to ensure company standards and expectations are met
- Request for Proposals (RFP) are sent to previously approved gas pipeline construction contractors consistent with company standard practices
- The Bidding process fosters competitive bidding
- Equitable bidding opportunities are provided to preapproved gas pipeline construction contractors with transparent and unbiased processes
- Unit price bid evaluations were conducted in a consistent manner throughout all districts
- Construction Agreements are executed to successful bidder(s)

A revised POA, reflecting the scope of the IM appointment, is being filed with the Commission.

A copy of the revised POA is included with the application.

5. Conclusion

The results from the 2021 COYL program year indicate that the program continues to enhance safety and assist COYL customers in the manner contemplated by the Commission. The COYL program and CCRM surcharge therefore remain in the public interest.

Exhibit JB-9

**SOUTHWEST GAS CORPORATION
DOCKET NO. G-01551A-21-0368
ARIZONA GENERAL RATE CASE 2021**

**ACC
Southwestern Energy Efficiency Project (SWEEP)
SWEEP-02
(SWEEP-02-006 THROUGH SWEEP-02-010)**

DOCKET NO: G-01551A-21-0368
COMMISSION: Arizona Corporation Commission
DATE OF REQUEST: 6/2/2022

REQUEST NO: SWEEP-02-006

Refer to the Response to Staff 03-008 Att. 1:

- a. Break down 2015-2021 program costs into costs for leak detection, COYL relocation capital costs, education, and other costs categories
- b. Provide an update on the new contract for pipeline relocation work and how that will impact the average cost per COYL relocation in 2022 and future years.
- c. Provide a breakdown of the number of known COYLs by city.
- d. Provide any studies conducted by the Company on the number of residential customers in Southwest Gas's service territory with gas heating, hot water, cooking, and other uses broken down geographically to the greatest extent possible
- e. Describe the Company's process to identify customers eligible for COYL replacement under Phase II of the COYL replacement program.
- f. For leak detection offered through the COYL program how does the Company identify customers eligible for inspection?
- g. How often does the Company inspect each known COYL?
- h. Are all COYLs where a leak is identified eligible for COYL replacement or does the Company categorize leaks and provide the customer information on the size or categorization of identified leaks?

RESPONDENT: Regulation

RESPONSE:

- a. Per Decision No. 72723, and as reported annually as part of the COYL Cost Recovery Mechanism Surcharge filing, the COYL surcharge is designed to recover the annual revenue requirement from the capital investment costs related to the COYL program (Program). O&M costs, such as leak survey, education, etc. are excluded from the surcharge calculation. Annual capital investment costs for the Program are displayed below:

Year	COYL CapEx
2015	\$ 7,131,725
2016	\$ 12,385,408
2017	\$ 19,731,067
2018	\$ 27,466,818
2019	\$ 25,944,270
2020	\$ 11,407,082
2021	\$ 5,801,109

- b. The new contract in the area with the most COYL locations in the state of Arizona is the Tucson area. Based on an assessment of the new contract's COYL specific pricing applied to prior year averages, there may be an increase of approximately 41% increase in total cost per COYL relocation.
- c. Please refer to SWEEP-02-006_Attachment 1. Please note, this schedule includes both active and inactive customers. At December 31, 2021, there were 65,199 active customers with COYLs in the state.
- d. Please refer to SWEEP-02-006_Attachment 2. This schedule identifies the appliance and stub count. The Company is compiling this information for 2022 and will supplement this response with that information.
- e. Customers with an eligible COYL meter location, whose natural gas service is impacted by the other replacement project, whether in the general geographic area of the project, or directly impacted, would be evaluated for inclusion in scope of project.
- f. COYLs eligible for leak surveys include active residential and small commercial locations with buried customer owned piping serving the primary structure.
- g. The Company offers a COYL leak survey to all eligible customers with an active account once every three years under the Program. Customer permission is required to perform a leak survey.

- h. Residential and small business customers with COYLs that are found to be leaking are generally eligible for a relocation under the Program. Customers are notified when a leak is detected and provided information regarding the COYL relocation option. Customers are responsible for contacting the Company to request a meeting with a COYL company representative. The customer and Company representative will review the specific conditions to determine the best course of action. Based on conditions such as interior piping, the customer may opt to repair as opposed to relocate the meter; however, since the Program's inception, the Company has experienced a customer acceptance rate of over 90 percent each year. It is also important to note that when a customer's COYL is found to be leaking, Southwest Gas will discontinue their natural gas service until the leak is eliminated – whether it is through a relocation under the COYL Program or through the customer electing to repair the leaking COYL.

Exhibit JB-10

**SOUTHWEST GAS CORPORATION
DOCKET NO. G-01551A-21-0368
ARIZONA GENERAL RATE CASE 2021**

**ACC
Southwestern Energy Efficiency Project (SWEEP)
SWEEP-02
(SWEEP-02-001 THROUGH SWEEP-02-010)**

DOCKET NO: G-01551A-21-0368
COMMISSION: Arizona Corporation Commission
DATE OF REQUEST: 6/2/2022

REQUEST NO: SWEEP-02-001

Refer to the Direct Testimony of John Olenick at 6:9-16

- a. Please provide a full list of all carbon offset registries that the Company will use to supply offsets for the Move2Zero Program.
- b. Will the Company limit carbon offsets to specific sectors, protocols, or vintages or will it purchase any offsets registered with an approved registry?
- c. Will there be any geographic limitations on the location of carbon offset projects purchase for the Move2Zero Program?
- d. How will the Company identify and prioritize projects to invest in for the Move2Zero program?
- e. Does the Company propose to earn any profit on the Move2Zero program?
- f. Please provide all marketing materials or marketing plans the Company has developed for the Move2Zero program.
- g. If the Company has yet to develop any marketing materials how does the Company expect to market this voluntary program?
- h. Please provide the results of all customer surveys or focus groups that show customer interest in a voluntary carbon offset program.
- i. What are the Company's enrollment targets for the first five years of the Move2Zero program?

RESPONDENT: Gas Supply

RESPONSE:

- a. Southwest Gas has not yet finalized a list of all the carbon offset registries that Company may utilize to supply offsets for the Move2Zero program. However, the Company will work with third parties who have an active account with a reputable carbon offset registry, or the Company will register itself with a registry for accepting issuance or transfer of verified emissions reductions instruments such as offset credits. As described in Mr. Olenick's Direct Testimony at Q. 17, "each carbon offset credit must be registered by a widely used and reputable carbon offset program as American Carbon Registry, Climate Action Reserve, Verra, Green-e, etc." Additional voluntary registries include Gold Standard Registry, Social Carbon Registry, Plan Vivo Registry, Verified Carbon Standard Registry, and Climate, Community, & Biodiversity Standards Registry. After Commission approval of the Move2Zero program and on completion of the solicitation process for offsets, the Company will finalize the list of offset registries that the Company will utilize to supply offsets for the Move2Zero program.
- b. Southwest Gas has not yet finalized the specific sectors, protocols, or vintages that may be purchased, but will only purchase offsets that are registered with an approved registry, such as those listed in response to Part a., above.
- c. Southwest Gas has not yet finalized the specific offset projects that may be purchased, so the geographic locations are not yet know. However, during the solicitation process, the Company will consider the geographic location of the carbon offset projects in its decision-making process and will give priority to projects located in Arizona, and if none are available within Arizona, project within western U.S. region will also be given priority.
- d. Southwest Gas will utilize a solicitation process to identify and prioritize carbon offset projects that are registered with a carbon offset program to ensure the carbon offset projects that produced the carbon offset credits meet the industry standards and the carbon offset credits are real, additional, verifiable, enforceable, and permanent.
- e. Southwest Gas will not profit from funds collected from customers participating in the Move2Zero program.
- f. Southwest Gas has not yet developed customer outreach material for the Move2Zero program.

- g. Southwest Gas is exploring options to provide customers informational inserts on customer bills to include high-level information on the Move2Zero program. Southwest Gas will develop a Move2Zero informational site specific to the Arizona service territory as part of its swgas.com website.
- h. Southwest Gas did not conduct surveys of Arizona customers to gauge interest in a voluntary carbon offset program.
- i. Southwest Gas has not established enrollment targets for Move2Zero program participation. However, costs incurred will only be recovered from customers who elected to participate in the program and offsets purchased will be generally relative to the level of participation.